

Note remarks

Edition : 28.04.97
Test oil : ISO 4113

Injection pump
Pump designation : PES3A75D410/3RS1324
EP type number : 0 410 473 977

Governor
Governor design. : RSV325...1150A8C494
: -4L
Governor no. : 0 420 232 572

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F3L912

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : \pm 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm	:	1.95
Tolerance mm	:	+ 0.05
Check		
tolerance mm	:	+ 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

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Phasing           : 0-120-240
Tolerance         : + 0.50
Check
tolerance *N2    : + 0.75
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Rated speed rpm : 1150

Rack travel in mm : 10.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 44.0

Tolerance
cm³/1000 strokes : \pm 0.5

Check tolerance
cm³/1000s. : \pm 2.0

Spread

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 325

Rack travel in mm : 5.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 10.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 3.5

Spread
Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 44.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 54.0
tolerance degree : ± 4.0

control lever
position degree : 104.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.60
Rated speed rpm : 1195
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 71.0
tolerance degree : ± 4.0

control lever
position degree : 21.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 5.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : 20.25

Testing:

Rated speed rpm : 325
rack travel mm : 5.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 420
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 10.65
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 11.10
Tolerance mm : \pm 0.10

Rated speed rpm : 500
rack travel mm : 11.65
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

rack travel mm : 11.65
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 10.5

Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 3.5

Speed
Tolerance

cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 400 463 133

Injection pump
Pump designation : PES3A75D410/3RS1324
EP type number : 0 410 473 977

Governor
Governor design. : RSV325...1400A8C495L
Governor no. : 0 420 232 302

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F3L912

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

A04

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1400

Rack travel in mm : 10.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 44.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Spread

Tolerance
cm³/1000 strokes : 2.0

Check tolerance
cm³/1000S. : 3.5

Rated speed rpm : 325

Rack travel in mm : 8.50
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1400
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 44.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.0
Spreed
Tolerance
cm³/1000 strokes : 2.0
Check tolerance
cm³/1000S. : 3.5

CONTROL LEVER

control lever
position degree : 67.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.20
Rated speed rpm : 1445
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1485
Tolerance 1/min : ± 15

A05

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 20.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 9.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 8.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 730
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1400
rack travel mm : 10.25
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.55
Tolerance mm : ± 0.05

Rated speed rpm : 955
rack travel mm : 10.90
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

rack travel mm : 10.90
Tolerance mm : ± 0.10

STARTING FUEL DELIVERY

Rated speed rpm : 100

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113
Combination No. : 0 400 463 155
Injection pump
Pump designation : PES3A80D410/3RS1350
EP type number : 0 410 483 023
Governor
Governor design. : RSV325...1175A8C2223
: -4L
Governor no. : 0 420 232 620
Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F3L912 *
Power KW : 38.0

TEST BENCH REQUIREMENTS

Inlet line : 1.3
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holde
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test Lines : 1 680 750 014
Outside diameter : 6.0

A07

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 3- 2
Phasing : 0-120-240
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1175
Rack travel in mm : 10.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 56.0
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.0
Speed
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S.

: 4.0

Rated speed rpm : 325

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 56.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.0

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.10
Rated speed rpm : 1220
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1425

rack travel mm : 4.00
Rated speed rpm : 1265
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 70.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 5.50
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 6.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 485

TORQUE CONTROL

Rated speed rpm : 1175
rack travel mm : 10.15
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 10.95
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
rack travel mm : 10.50
Tolerance mm : \pm 0.10

Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1175
Del. quantity
cm³/1000 strokes : 58.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.0

rack travel mm : 10.50
Tolerance mm : \pm 0.10

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.80
Tolerance mm : \pm 0.15
Del. quantity
cm³/1000 strokes : 110.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) #400/...

Edition : 30.04.97

Test oil : ISO 4113

Combination No. : 0 400 646 199

Injection pump

Pump designation : PE6A90D410RS2124

EP type number : 0 410 696 141

Governor

Governor design. : RQ300/1250AB812DL

Governor no. : 0 420 202 243

Cust. part No. :

Customer-spec. information

Customer : MB-NFZ

Motor : OM 360

Power KW : 141.2

TEST BENCH REQUIREMENTS

Inlet Line : 1.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder assembly

: 0 681 343 009

Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.20

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Del. quantity

cm³/1000 strokes : 86.5

Tolerance

cm³/1000 strokes : ± 0.5

Check tolerance

cm³/1000S. : ± 2.5

Speed

Tolerance

cm³/1000 strokes : 3.0

Check tolerance

cm³/1000S. : 4.5

Rated speed rpm : 300
 Rack travel in mm : 5.60
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 15.0
 Tolerance
 cm³/1000 strokes : \pm 3.0
 Check tolerance
 cm³/1000S. : \pm 5.0
 Spreed
 Tolerance
 cm³/1000 strokes : 2.0
 Check tolerance
 cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
 position degree : - 1
 Rated speed rpm : 700
 Rack travel in mm : 16.00
 Tolerance mm : \pm 0.40

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
 Aneroid pressure
 hPa : -
 Del. quantity
 cm³/1000 strokes : 86.5
 Tolerance
 cm³/1000 strokes : \pm 0.5
 Check tolerance
 cm³/1000S. : \pm 2.5
 Spreed
 Tolerance
 cm³/1000 strokes : 3.0
 Check tolerance
 cm³/1000S. : 4.5

RATED SPEED
 rack travel mm : 9.20
 Rated speed rpm : 1303
 Tolerance 1/min : \pm 8
 rack travel mm : 4.00
 Rated speed rpm : 1360

Tolerance 1/min : \pm 15

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 100
 CRT mm min. : $>$ 7.90

Testing:

Rated speed rpm : 300
 rack travel mm : 5.60
 Tolerance mm : \pm 0.10

rack travel mm : 2.00
 Rated speed rpm : 380
 Tolerance 1/min : \pm 20

Rated speed rpm : 500
 CRT mm max. : \leq 1.00

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 800
 Del. quantity
 cm³/1000 strokes : 81.5
 Tolerance
 cm³/1000 strokes : \pm 1.5
 Check tolerance
 cm³/1000S. : \pm 3.5
 Spreed
 Check tolerance
 cm³/1000S. : 5.5

LOW IDLE

Rated speed rpm : 300
 Rack travel in mm : 5.60
 Tolerance mm : \pm 0.10
 Del. quantity
 cm³/1000 strokes : 15.0

Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 5.0
Speed
Tolerance
cm3/1000 strokes : 2.0
Check tolerance
cm3/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 30.04.97
Test oil : ISO 4113
Combination No. : 0 400 646 248
Injection pump
Pump designation : PE6A90D410RS2124X
EP type number : 0 410 696 155
Governor
Governor design. : RQ375/1275AB658DL
Governor no. : 0 420 202 282

Cust. part No. :

Customer-spec. information
Customer : MB-NFZ
Motor : OM 360
Power KW : 125.0

TEST BENCH REQUIREMENTS

Inlet Line : 1.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 9.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 77.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 375

Rack travel in mm : 6.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 5.0

Spread
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 700

Rack travel in mm : 16.00
Tolerance mm : ± 0.40

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 77.5
Tolerance
cm³/1000 strokes : ± 0.5
Check tolerance
cm³/1000S. : ± 2.5
Spread
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 4.5

CONTROL LEVER

control lever
position degree : 8224.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 8.30
Rated speed rpm : 1303
Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1360
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 8224.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 7.50

Testing:

Rated speed rpm : 375
rack travel mm : 6.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 440
Tolerance 1/min : ± 20

Rated speed rpm : 500

CRT mm max. : < 1.00

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 9.35
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 10.15
Tolerance mm : ± 0.05

Rated speed rpm : 895
rack travel mm : 9.90
Tolerance mm : ± 0.10

Rated speed rpm : 1075
rack travel mm : 9.55
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 78.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5

rack travel mm : 9.90
Tolerance mm : \pm 0.10

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 16.50
Tolerance mm : \pm 1.30

LOW IDLE

Rated speed rpm : 375
Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113
Combination No. : 0 400 646 275
Injection pump
Pump designation : PE6A95D410LS2621
EP type number : 0 410 696 982
Governor
Governor design. : RQ300/125DAB1148-1L
Governor no. : 0 420 200 104

Cust. part No. :

Customer spec. information
Customer : KHD
Motor : F6L413F
Power kW : 141.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder assembly : 0 681 343 009
Opening pressure bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.05
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 6- 5- 4- 3-
: 2
Phasing : 0-75-120-195-240
: -315
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250
Rack travel in mm : 10.65
Tolerance mm : ± 0.05
Del. quantity cm³/1000 strokes : 97.5
Tolerance cm³/1000 strokes : ± 1.0
Check tolerance cm³/1000S. : ± 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 300

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 97.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

RATED SPEED

rack travel mm : 9.60
Rated speed rpm : 1303
Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1340
Tolerance 1/min : ± 15

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 7.90

Testing:

Rated speed rpm : 300
rack travel mm : 6.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 360
Tolerance 1/min : ± 20

TORQUE CONTROL

Dimension a mm : 0.17
Rated speed rpm : 1250
rack travel mm : 10.65
Tolerance mm : ± 0.05

Rated speed rpm : 600
rack travel mm : 11.15
Tolerance mm : ± 0.05

Rated speed rpm : 915
rack travel mm : 11.15
Tolerance mm : ± 0.05

Rated speed rpm : 980
rack travel mm : 10.90
Tolerance mm : ± 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80

Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 96.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

rack travel mm : 11.15
Tolerance mm : ± 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.45
Tolerance mm : ± 0.15
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.50
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113
Combination No. : 0 400 674 048
Injection pump
Pump designation : PE4A95D420RS2662-1
EP type number : 0 410 694 994
Governor
Governor design. : RSV350...1100A8C2222
: -2R
Governor no. : 0 420 233 339
Cust. part No. : 44 004 065 M91

Customer-spec. information
Customer : HANOMAG
Motor : D944T
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 1.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : D AUE REN TL.
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 003
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 2- 4- 3
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 12.80
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 350

Rack travel in mm : 6.30

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 3.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 130.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1145

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1200

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1300

rack travel mm : 4.00

Rated speed rpm : 1220

Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 68.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 350
rack travel mm : 6.30
Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 500

Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1100

rack travel mm : 12.80

Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 900
rack travel mm : 13.00
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 131.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

rack travel mm : 13.00
Tolerance mm : \pm 0.10

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed

Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.04.97
Test oil : ISO 4113
Combination No. : 0 400 674 049
Injection pump
Pump designation : PE4A95D420RS2662-1
EP type number : 0 410 694 994
Governor
Governor design. : RSV350...1100A8C2222
: -3R
Governor no. : 0 420 233 340
Cust. part No. : 4404 084 M91

Customer spec. information
Customer : HANOMAG
Motor : D944T
Power KW : 97.0

TEST BENCH REQUIREMENTS

Inlet line : 1.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : D AUE REN TL.

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 003

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 2- 4- 3

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 350

Rack travel in mm : 6.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance

cm³/1000 strokes : 5.5
Check tolerance

cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

CONTROL LEVER

control lever
position degree : 103.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.25
Rated speed rpm : 1145
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1225
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : + 0.10

Rated speed rpm : 100
CRT mm min. : > 19.50

Testing:

Rated speed rpm : 350
rack travel mm : 6.30
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 500
rack travel mm : 11.70
Tolerance mm : + 0.05

Rated speed rpm : 950
rack travel mm : 11.50
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 105.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0

rack travel mm : 11.50
Tolerance mm : + 0.10

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + 0.75
Del. quantity
cm³/1000 strokes : 130.0
Tolerance
cm³/1000 strokes : + 7.5
Check tolerance
cm³/1000S. : + 10.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 6.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.01.97
Test oil : ISO 4113
Combination No. : 0 400 836 030
Injection pump
Pump designation : PES6A95D410LS2542-1
EP type number : 0 410 896 912
Governor
Governor design. : RGV250...1100AB1177L
Governor no. : 0 420 212 162

Cust. part No. :

Customer-spec. information
Customer : MAN
Motor : D2566 M/MF
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 1.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 12.05
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 125.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 250

Rack travel in mm : 6.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200
guide sleeve
travel mm : 9.70
Tolerance mm : \pm 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.15
Tolerance mm : \pm 0.05

Rated speed rpm : 375
guide sleeve
travel mm : 2.25
Tolerance mm : \pm 0.15

Rated speed rpm : 500
guide sleeve
travel mm : 3.65
Tolerance mm : \pm 0.15

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1140

Rack travel in mm : 16.50

Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 125.5

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1195
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 73.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.20

Testing:

Rated speed rpm : 250

rack travel mm : 6.80
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 380
Tolerance 1/min : + 35

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.05
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 12.10
Tolerance mm : + 0.10

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 170

Check
speed 1/min : > 80
Check
speed 1/min : < 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 110.5
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.5

Aneroid pressure

hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 114.5
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.70

Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 6.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000S. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.96
Test oil : ISO 4113
Combination No. : 0 400 846 588
Injection pump
Pump designation : PES6A95D420LS2804
EP type number : 0 410 896 899
Governor
Governor design. : RQ200/1050AB1246-1R
Governor no. : 0 420 201 652

Cust. part No. :

Customer spec. information
Customer : RABA
Motor : D2156 HM6 UT
Power KW : 162.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 1.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050
Rack travel in mm : 12.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 200

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 500

Rack travel in mm : 20.00
Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure

hPa : 700

Del. quantity
cm³/1000 strokes : 120.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

RATED SPEED

B01

rack travel mm : 11.00
Rated speed rpm : 1103
Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1140
Tolerance 1/min : ± 15

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 200
rack travel mm : 6.50
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 310
Tolerance 1/min : ± 20

TORQUE CONTROL

Dimension a mm : 0.45
Rated speed rpm : 1050
rack travel mm : 12.05
Tolerance mm : ± 0.05

Rated speed rpm : 415
rack travel mm : 13.30
Tolerance mm : ± 0.20

Rated speed rpm : 680
rack travel mm : 12.90
Tolerance mm : ± 0.20

Rated speed rpm : 835
rack travel mm : 12.45
Tolerance mm : ± 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.75
Tolerance mm : ± 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.75
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 180
rack travel mm : 11.25
Tolerance mm : \pm 0.15

Pressure hPa : 260
rack travel mm : 12.55
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 140

Check
speed 1/min : > 80
Check
speed 1/min : < 160

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0

rack travel mm : 12.90
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 17.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 200
Rack travel in mm : 6.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.04.97
Test oil : ISO 4113

Combination No. : 0 400 846 601

Injection pump
Pump designation : PES6A80D410RS2819
EP type number : 0 410 886 064

Governor
Governor design. : RQV300...1250AB1262
: -2L
Governor no. : 0 420 212 237

Cust. part No. :

Customer spec. information
Customer : IVECO-FIAT
Motor : 8061.05.000
Power KW : 117.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

B03

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 2.80
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.30
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 66.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000s. : ± 2.0

Speed

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

Rated speed rpm : 300

Rack travel in mm : 10.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : + 1.5

Check tolerance
cm³/1000S. : + 3.5

Spread
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 850
guide sleeve
travel mm : 5.35
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 0.95
Tolerance mm : + 0.25

Rated speed rpm : 350
guide sleeve
travel mm : 1.75
Tolerance mm : + 0.25

Rated speed rpm : 490
guide sleeve
travel mm : 3.15
Tolerance mm : + 0.25

Rated speed rpm : 1290
guide sleeve
travel mm : 8.45
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1390

Rack travel in mm : 10.70
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 66.5

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.0

Spread
Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.30
Rated speed rpm : 1335
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1465
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1575

LOW IDLE

control lever
position degree : 73.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT min. : > 11.50

Testing:

Rated speed rpm : 300
rack travel mm : 10.00
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Dimension a mm : 1.00
Rated speed rpm : 1250
rack travel mm : 12.30
Tolerance mm : \pm 0.05

Rated speed rpm : 350
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.90
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 12.65
Tolerance mm : \pm 0.15

STARTING FUEL DELIVERY

ESS test: With 12 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 300

B05

Rack travel in mm : 10.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

Note remarks

Edition : 29.04.97
Test oil : ISO 4113

Injection pump
Pump designation : PES6A90D410RS2823
EP type number : 0 410 896 093

Cust. part No. :

Customer : IVECO-FIAT
Motor : 8060.25.679
Power Kw : 170.0

Inlet line : 3.1

Overflow valve : 1 419 992 193

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure : 173.5 bar
Tolerance bar : \pm 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

Test pressure bar : 26.0
Tolerance bar : \pm 1.0

```
Prestroke mm      : 2.80
Tolerance mm      : + 0.05
Check
tolerance mm      : + 0.10
```

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

```

Phasing      : 0-60-120-180-240
              : -300
Tolerance    : +- 0.50
Check
tolerance *Nw : +- 0.75

```

Rated speed rpm : 1350

Rack travel in mm : 12.90
Tolerance mm : +- 0.05

Del. quantity
cm³/1000 strokes : 82.5

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm3/1000S. : + 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 300

Rack travel in mm : 9.00
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 11.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.0

Spread
Tolerance
cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1015
guide sleeve
travel mm : 6.05
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.25
Tolerance mm : + 0.25

Rated speed rpm : 460
guide sleeve
travel mm : 2.45
Tolerance mm : + 0.25

Rated speed rpm : 640
guide sleeve
travel mm : 3.45
Tolerance mm : + 0.25

Rated speed rpm : 1390
guide sleeve
travel mm : 8.45
Tolerance mm : + 0.25

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1490

Rack travel in mm : 12.20
Tolerance mm : + 1.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1350
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 82.5

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.5

Spread
Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 118.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.90
Rated speed rpm : 1410

Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1570

Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1700

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT min. : > 10.50

Testing:

Rated speed rpm : 300
rack travel mm : 9.00
Tolerance mm : ± 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1350
rack travel mm : 12.90
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 13.75
Tolerance mm : ± 0.05

Rated speed rpm : 850
rack travel mm : 13.30
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.75
Tolerance mm : ± 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.75
Tolerance mm : ± 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 425
rack travel mm : 12.30
Tolerance mm : ± 0.15

Pressure hPa : 525
rack travel mm : 13.25
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 83.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 3.5

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,
rack must reach start position in max.
control lever setting.

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : ± 0.75
Del. quantity
cm³/1000 strokes : 152.0
Tolerance
cm³/1000 strokes : ± 7.5
Check tolerance
cm³/1000S. : ± 10.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 9.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 11.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

Note remarks

Edition : 04.07.97
Test oil : ISO 4113
Combination No. : 0 400 866 122

Governor
Governor design. : RSV325...1200A0C2182
: -3R
Governor no. : 0 420 233 212

Cust. part No. :

Customer : MWM
Motor : TD226B-6
Power KW : 123.0

Inlet Line : 3.1

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure : 173.5 bar
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

Test pressure bar : 26.0
Tolerance bar : + 1.0

```

Prestroke mm      :      3.00
Tolerance mm      :  +  0.05
Check
tolerance mm      :  +  0.10

```

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

```

Phasing      : 0-60-120-180-240
              : -300
Tolerance    : +- 0.50
Check
tolerance *NW : +- 0.75

```

Beginning of delivery difference

and maximum rack		
travel	:	9.00
Tolerance mm	:	+ 0.50
Difference ° CS	:	4.00

Rated speed rpm : 1180

Rack travel in mm : 11.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 89.5

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

Rated speed rpm : 325

Rack travel in mm : 6.70

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1180
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 89.5

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 4.5

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.60
Rated speed rpm : 1225
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1435

rack travel mm : 4.00
Rated speed rpm : 1275
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 7.20
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 6.70
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 515
Tolerance 1/min : + 30

TORQUE CONTROL

Dimension a mm : 0.85
Rated speed rpm : 1180
rack travel mm : 11.65
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 12.45
Tolerance mm : + 0.05

Rated speed rpm : 850
rack travel mm : 12.10
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.45
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.45
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 180
rack travel mm : 11.10
Tolerance mm : + 0.10

Pressure hPa : 320
rack travel mm : 11.85
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 94.0

Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

rack travel mm : 12.10
Tolerance mm : + 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 61.5
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 2.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + 0.75
Del. quantity
cm³/1000 strokes : 133.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.70
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0

Speed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.04.97
Test oil : ISO 4113
Combination No. : 0 400 866 164
Injection pump
Pump designation : PES6A90D320/3RS2660
EP type number : 0 410 896 078
Governor
Governor design. : RSV325...1175A0C2249
: R
Governor no. : 0 420 233 265
Cust. part No. :

Customer spec. information
Customer : MWM
Motor : TD226B-6
Power KW : 121.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 3.00
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Beginning of delivery difference
and maximum rack
travel : 9.00
Tolerance mm : + 0.50
Difference ° CS : 4.00

BASIC SETTING

Rated speed rpm : 1175
Rack travel in mm : 11.75
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 93.5

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

Rated speed rpm : 325

Rack travel in mm : 5.70

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 2.5

Check tolerance
cm³/1000S. : 4.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 700
Del. quantity
cm³/1000 strokes : 93.5

Tolerance
cm³/1000 strokes : + 0.5

Check tolerance
cm³/1000S. : + 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 5.0

CONTROL LEVER

control lever
position degree : 97.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.70
Rated speed rpm : 1220
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1275
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1445

rack travel mm : 4.00
Rated speed rpm : 1295
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 71.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.20
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 5.70
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 500
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1175
rack travel mm : 11.75
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 12.05
Tolerance mm : + 0.05

Rated speed rpm : 715
rack travel mm : 11.90
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 12.05
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.40
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 225
rack travel mm : 11.00
Tolerance mm : + 0.10

Pressure hPa : 325
rack travel mm : 11.65
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 90.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.5

Aneroid pressure

hPa : 700
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 91.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.5

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 strokes : + 0.5
Check tolerance
cm³/1000S. : + 2.5

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + 0.75
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 5.70
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 2.5
Check tolerance
cm³/1000S. : 4.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.97
Test oil : ISO 4113

Combination No. : 0 400 876 274

Injection pump
Pump designation : PES6A95D410RS2471
EP type number : 0 410 896 952

Governor
Governor design. : RSV325...1150A80812L
Governor no. : 0 420 232 613

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : BF6L913C
Power kW : 132.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 1.95
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 109.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 325

Rack travel in mm : 7.30

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000S. : \pm 5.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 4.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 109.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.80
Rated speed rpm : 1195
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1250
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1300
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.80
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 325
rack travel mm : 7.30
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 615
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
rack travel mm : 11.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 9.95
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 93
rack travel mm : 10.20
Tolerance mm : \pm 0.10

Pressure hPa : 373
rack travel mm : 11.55
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 63.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 15.70
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 7.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113
Combination No. : 0 400 864 110
Injection pump
Pump designation : PES4A95D410/3RS2932
EP type number : 0 410 894 985

Governor
Governor design. : RSV550...900A1C953L
Governor no. : 0 420 232 643

Cust. part No. : 0423 2523 KY

Customer-spec. information
Customer : KHD
Motor : F4L913 COM1
Power KW : 49.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.00
Tolerance mm : ± 0.05

Rack travel in mm : 6.00
Tolerance mm : ± 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 4.25

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : \pm 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 895
rack travel mm : 10.00

Rated speed rpm : 935
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1110

Rated speed rpm : 896
rack travel mm : 10.00

Rated speed rpm : 936
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1110

Rated speed rpm : 897
rack travel mm : 10.00

Rated speed rpm : 937
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55

Rated speed rpm : 1110

Rated speed rpm : 898
rack travel mm : 10.00

Rated speed rpm : 938
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1110

Rated speed rpm : 899
rack travel mm : 10.00

Rated speed rpm : 939
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1110

Rated speed rpm : 900
rack travel mm : 10.00

Rated speed rpm : 940
Tolerance 1/min : \pm 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1110

LOW IDLE

control lever
position degree : 80.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 100

CRT mm min. : $>$ 19.50

Testing:

Rated speed rpm : 550
rack travel mm : 6.00

Tolerance mm : \pm 0.10
rack travel mm : 2.00
Rated speed rpm : 610
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 11.00
Tolerance mm : \pm 0.05

Rated speed rpm : 500

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75

LOW IDLE

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.12.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 094

Injection pump
Pump designation : PES4A90D321RS2829
EP type number : 9 410 037 189

Governor
Governor design. : RSV325...1750A0C968R
Governor no. : F 002 A20 024

Cust. part No. :

Customer-spec. information
Customer : EICHER
Motor : 4D31C EXPORT
Power kW : 69.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 9 411 037 403

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.60
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3-4-2

Phasing : 0-90-270-360
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1750

Rack travel in mm : 8.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 47.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Spread

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

Rated speed rpm : 325

Rack travel in mm : 7.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 10.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance

cm³/1000 strokes : 4.5

Check tolerance
cm³/1000S. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1750
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 47.5

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 2.5

Speed
Tolerance

cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 7.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 7.60
Rated speed rpm : 1845
Tolerance 1/min : ± 5

rack travel mm : 5.50
Rated speed rpm : 1925
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 2100

rack travel mm : 5.50
Rated speed rpm : 1935
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 6.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 16.00

Testing:

Rated speed rpm : 325
rack travel mm : 7.00
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 730
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1750
rack travel mm : 8.60
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 8.70
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 8.85
Tolerance mm : \pm 0.05

Rated speed rpm : 1500
rack travel mm : 8.60
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 49.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

Aneroid pressure
hPa : -
rack travel mm : 8.85
Tolerance mm : \pm 0.05
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 3.5
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 14.00
Tolerance mm : \pm 0.50

Tolerance
cm³/1000 strokes : \pm 7.5
Check tolerance
cm³/1000S. : \pm 10.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 7.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 10.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 4.5
Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.97
Test oil : ISO 4113

Combination No. : 0 400 864 111

Injection pump
Pump designation : PES4A95D410/3RS2933
EP type number : 0 410 894 984

Governor
Governor design. : RSV550...900A1C953L
Governor no. : 0 420 232 643

Cust. part No. : 0423 2524 KY

Customer-spec. information
Customer : KHD
Motor : F6L912 COM1
Power KW : 31.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-90-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 850

Rack travel in mm : 11.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 76.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

Rated speed rpm : 550

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance

cm³/1000 strokes : 5.5

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 850
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 76.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 8.0

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : + 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 895
rack travel mm : 10.00

Rated speed rpm : 935
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1110

Rated speed rpm : 896
rack travel mm : 10.00

Rated speed rpm : 936
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1110

Rated speed rpm : 897
rack travel mm : 10.00

Rated speed rpm : 937
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1110

Rated speed rpm : 898
rack travel mm : 10.00

Rated speed rpm : 938
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1110

Rated speed rpm : 899
rack travel mm : 10.00

Rated speed rpm : 939
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1110

Rated speed rpm : 900
rack travel mm : 10.00

Rated speed rpm : 940
Tolerance 1/min : + 5
rack travel mm : 4.00

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1110

LOW IDLE

control lever
position degree : 80.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 550
rack travel mm : 5.50
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 550
rack travel mm : 6.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 610
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 850
rack travel mm : 11.00
Tolerance mm : + 0.05

Rated speed rpm : 500

CO1

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + 0.75
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : + 7.5
Check tolerance
cm³/1000S. : + 10.0

LOW IDLE

Rated speed rpm : 550

Rack travel in mm : 6.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.12.97
Test oil : ISO 4113
Combination No. : 0 400 866 145BA

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. :

Customer-spec. information
Customer : CUMMINS
Motor : 6 C
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 11.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 101.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 350

Rack travel in mm : 4.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3

governor spring
pre-tension
click setting x : 5.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 101.0

Tolerance
cm³/1000 strokes : ± 0.5

Check tolerance
cm³/1000S. : ± 3.0

Speed
Tolerance

cm³/1000 strokes : 4.0
Check tolerance

cm³/1000S. : 6.5

RATED SPEED

C03

rack travel mm : 10.00
Rated speed rpm : 945
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1470

LOW IDLE

Setting point w/out bumper spring

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 350
rack travel mm : 4.50
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 11.05
Tolerance mm : ± 0.05

Rated speed rpm : 500
rack travel mm : 11.10
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 700

Del. quantity
cm³/1000 strokes : 99.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00

Del. quantity
cm³/1000 strokes : 145.0

Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 13.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.50
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.12.97
Test oil : ISO 4113
Combination No. : 0 400 866 204BA

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921106

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT - 8.3 L
Power KW : 173.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

C05

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 11.00

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 107.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.60
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 14.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spreed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : FREE
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 107.0

C06

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spreed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

CONTROL LEVER

control lever
position degree : 105.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 10.30
Rated speed rpm : 1095
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1165
Tolerance 1/min : ± 15

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1300

rack travel mm : 4.00
Rated speed rpm : 1170
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 80.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 5.10
Tolerance mm : ± 0.10

Testing:

Rated speed rpm : 400
rack travel mm : 5.60
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 550
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 12.50
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 400
Rack travel in mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 14.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0

Check tolerance

cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.12.97
Test oil : ISO 4113

Combination No. : 0 400 866 208BE

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 392 1164

Customer-spec. information
Customer : CUMMINS
Motor : 6 CT 8.3
Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet line : 2.

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 28.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 10.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.45

Tolerance mm	: ± 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes	: 125.5
<hr/>	
Tolerance cm ³ /1000 strokes	: ± 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: ± 3.5
<hr/>	
Speed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 4.0
<hr/>	
Check tolerance cm ³ /1000S.	: 6.5
<hr/>	

Rated speed rpm	: 415
<hr/>	
Rack travel in mm	: 5.60
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 18.0
Tolerance cm ³ /1000 strokes	: ± 2.0
Check tolerance cm ³ /1000S.	: ± 4.5
Speed	
Tolerance cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
<hr/>	
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
<hr/>	
governor spring pre-tension click setting x	: 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 125.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.5
Speed	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 96.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 11.40
Rated speed rpm	: 1115
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1180
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1350

rack travel mm	: 4.00
Rated speed rpm	: 1190
Tolerance 1/min	: ± 15

LOW IDLE

control lever position degree	: 76.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 415
rack travel mm	: 5.10
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
-------------	-----------

Testing:

Rated speed rpm : 415
rack travel mm : 5.60
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 470
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.45
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 415
Rack travel in mm : 5.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.12.97
Test oil : ISO 4113

Combination No. : 0 400 866 214BA

Injection pump
Pump designation :
EP type number :

Governor
Governor design. :
Governor no. :

Cust. part No. : 3921129

Customer-spec. information
Customer : CUMMINS
Motor : 6CT830
Power kW : 134.2

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 12.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 119.0

Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 3.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 6.5

Rated speed rpm	: 470
Rack travel in mm	: 5.90
Tolerance mm	: ± 0.10
Del. quantity	
cm ³ /1000 strokes	: 17.5
Tolerance	
cm ³ /1000 strokes	: ± 2.0
Check tolerance	
cm ³ /1000S.	: ± 4.5
Spread	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever	
position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring	
pre-tension	
click setting x	: 4.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1100
Aneroid pressure	
hPa	: -

Del. quantity	
cm ³ /1000 strokes	: 119.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 3.0
Spread	
Tolerance	
cm ³ /1000 strokes	: 4.0
Check tolerance	
cm ³ /1000S.	: 6.5

CONTROL LEVER

control lever	
position degree	: 103.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 11.40
Rated speed rpm	: 1150
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1210
Tolerance 1/min	: ± 15

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1350

rack travel mm	: 4.00
Rated speed rpm	: 1220
Tolerance 1/min	: ± 15

LOW IDLE

control lever	
position degree	: 85.0
tolerance degree	: ± 4.0

Control lever difference

Grad	: 18.0
tolerance degree	: ± 4.0

Setting point w/out bumper spring

Rated speed rpm	: 470
rack travel mm	: 5.40
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT mm min.	: > 19.00
-------------	-----------

Testing:

Rated speed rpm : 470
rack travel mm : 5.90
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.40
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 13.50
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 134.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 470
Rack travel in mm : 5.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 746 600

Injection pump
Pump designation : PES6P120A320LS7322
EP type number : 0 412 726 904

Governor
Governor design. : RQV350...1000PA1135
: -1K
Governor no. : 0 421 815 473

Cust. part No. : 1824945C91

Customer spec. information
Customer : NAVISTAR
Motor : DT-531
Power KW : 206.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 076

Inlet press. bar : 2.8
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.90
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 14.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 220.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 5.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1066
guide sleeve

travel mm : 9.62
Tolerance mm : + 0.25

Rated speed rpm : 350
guide sleeve

travel mm : 1.95
Tolerance mm : + 0.25

Rated speed rpm : 737
guide sleeve

travel mm : 6.27
Tolerance mm : + 0.25

Rated speed rpm : 383
guide sleeve

travel mm : 2.46

Tolerance mm : + 0.25

Rated speed rpm : 433
guide sleeve

travel mm : 3.17
Tolerance mm : + 0.25

Rated speed rpm : 490
guide sleeve

travel mm : 4.00
Tolerance mm : + 0.25

Rated speed rpm : 1330
guide sleeve

travel mm : 13.50
Tolerance mm : + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure

hPa : 1200
Del. quantity

cm³/1000 strokes : 220.0
Tolerance

cm³/1000 strokes : + 1.0
Check tolerance

cm³/1000S. : + 4.0
Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 119.0

tolerance degree : + 6.0

RATED SPEED

rack travel mm : 13.50
Rated speed rpm : 1065

Tolerance 1/min : + 15

rack travel mm : 4.00
Rated speed rpm : 1185

Tolerance 1/min : + 5

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1225

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : $>$ 8.00

Testing:

Rated speed rpm : 350
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 425

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 14.55
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 13.30
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 13.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Pressure hPa : 1200

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : 10.10
Tolerance mm : \pm 0.20

MEASUREMENT

Pressure hPa : 700
rack travel mm : 13.45
Tolerance mm : \pm 0.20

Pressure hPa : 330
rack travel mm : 11.35
Tolerance mm : \pm 0.05

Start interlock

C16

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 280

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 290

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200
Rated speed rpm : 800
rack travel mm : 13.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 215.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure

hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 113.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 30.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 026

Injection pump
Pump designation : PES4A95D320/3RS2880
EP type number : 9 410 037 214

Governor
Governor design. : RSV475...1250A0C904R
Governor no. : F 002 A20 220

Cust. part No. : 3930148

Customer spec. information
Customer : CDC
Motor : 4BT3.9
Power KW : 63.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 85.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.50

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 20.5

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 85.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 9.30
Rated speed rpm : 1305
Tolerance 1/min : ± 5

rack travel mm : 6.30
Rated speed rpm : 1355
Tolerance 1/min : ± 5

rack travel mm : 0.85
Tolerance mm : ± 0.55
Rated speed rpm : 1475

rack travel mm : 6.30
Rated speed rpm : 1355
Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 90.0
tolerance degree : ± 4.0

Control lever difference
Grad : 22.0
tolerance degree : ± 6.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.35
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.00
Tolerance mm : \pm 0.10

Rated speed rpm : 950
rack travel mm : 10.70
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 88.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

rack travel mm : 10.70
Tolerance mm : \pm 0.10

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 121.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 20.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.12.97
Test oil : ISO 4113
Combination No. : 0 402 066 714
Injection pump
Pump designation : PES6P110A120RS3336
: -1
EP type number : 0 412 016 751
Governor
Governor design. : RSV440...900P2A687
Governor no. : 0 421 833 609

Cust. part No. : 3933640

Customer-spec. information

Customer : CDC
Motor : 6CTA
Power KW : 194.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 093
Inlet press. bar : 2.0
Tolerance bar : + 0.1
Test nozzle holder
assembly : 1 688 901 103
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 015

Outside diameter : 6.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0
Prestroke mm : 3.60
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Start of delivery blocking
°NW after s.o.d. : 8.00
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Barrel no. : 1
Beginning of delivery difference
and maximum rack
travel : 15.00
Difference °CS : 1.50

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.75
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 201.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 440

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 6.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

C22

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 201.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 87.0
tolerance degree : \pm 6.0

RATED SPEED
rack travel mm : 13.75
Rated speed rpm : 1010
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1075
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1200

rack travel mm : 4.00
Rated speed rpm : 1090
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 66.0
tolerance degree : \pm 6.0

Control lever difference
Grad : 21.0

tolerance degree : \pm 6.0

Setting point w/out bumper spring

Rated speed rpm : 440
rack travel mm : 4.80

Rated speed rpm : 100

CRT mm min. : $>$ 19.00

Testing:

Rated speed rpm : 440
rack travel mm : 5.30
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.75
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1500

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 11.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 995
rack travel mm : 13.45
Tolerance mm : \pm 0.20

Pressure hPa : 650
rack travel mm : 12.05
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 123.5

Tolerance

cm³/1000 strokes : \pm 1.0

Check tolerance

cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 21.00
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rated speed rpm : 440

Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 6.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.12.97
Test oil : ISO 4113

Combination No. : 9 400 030 720

Injection pump
Pump designation : PES6A95D320/3RS2895
EP type number : 9 410 037 238

Governor
Governor design. : RSV475...125DA0C833P
Governor no. : 9 420 034 703

Cust. part No. : 3928595

Customer-spec. information
Customer : CDC
Motor : 6BTA
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 9.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.75

Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 108.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 475

Rack travel in mm : 5.50

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 17.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 108.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 11.70
Rated speed rpm : 1325
Tolerance 1/min : \pm 5

rack travel mm : 5.50
Rated speed rpm : 1395
Tolerance 1/min : \pm 5

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1480

rack travel mm : 5.50
Rated speed rpm : 1395
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 85.0
tolerance degree : \pm 4.0

Control lever difference
Grad : 27.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.75
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.55
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 480
rack travel mm : 12.10
Tolerance mm : \pm 0.20

Pressure hPa : 350
rack travel mm : 11.40
Tolerance mm : \pm 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 72.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 15.12.97
Test oil : ISO 4113

Combination No. : F 002 A0Z 057

Injection pump
Pump designation : PES4A95D320/3RS2927
EP type number : F 002 A10 017

Governor
Governor design. : RSV475...1250A0C936R
Governor no. : F 002 A20 241

Cust. part No. : 3930145

Customer-spec. information
Customer : CDC
Motor : 4BNA3.9
Power KW : 59.7

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.20
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 92.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.0
Speed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

Rated speed rpm	: 475
Rack travel in mm	: 5.00
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 13.5
Tolerance cm ³ /1000 strokes	: ± 2.0
Check tolerance cm ³ /1000S.	: ± 4.5
Speed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 3.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
-----------------	--------

Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 92.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 3.0
Speed	
Tolerance cm ³ /1000 strokes	: 3.5
Check tolerance cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever position degree	: 91.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 9.20
Rated speed rpm	: 1320
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1380

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1450

rack travel mm	: 4.00
Rated speed rpm	: 1385
Tolerance 1/min	: ± 15

LOW IDLE

control lever position degree	: 70.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 21.0
tolerance degree	: ± 6.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 4.50
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
-----------------	-------

CRT min. : > 19.00

Testing:

Rated speed rpm : 475
rack travel mm : 5.00
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 10.20
Tolerance mm : \pm 0.05

Rated speed rpm : 600

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 475

Rack travel in mm : 5.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 13.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

D01

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.97

Test oil : ISO 4113

Combination No. : F 002 A0Z 068

Injection pump

Pump designation : PES6A95D320/3RS2928

EP type number : F 002 A10 019

Governor

Governer design. : RSV450...900A7C946R

Governer no. : F 002 A20 246

Cust. part No. : 3933101

Customer spec. information

Customer : CDC

Motor : 6BTA

Power KW : 132.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holder assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

D02

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 2.65

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 7.50

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.35

Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 134.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 450

Rack travel in mm : 7.50

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 22.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 134.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 112.5
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 955

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 995

Tolerance 1/min : + 5

rack travel mm : 0.85

Tolerance mm : + 0.55

Rated speed rpm : 1075

rack travel mm : 4.00

Rated speed rpm : 1005

Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 87.0
tolerance degree : + 4.0

Control lever difference
Grad : 25.5
tolerance degree : + 6.0

Setting point w/out bumper spring

Rated speed rpm : 450

rack travel mm : 7.00

Tolerance mm : + 0.10

Rated speed rpm : 100
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 450
rack travel mm : 7.50
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.35
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 15.0

LOW IDLE

Rated speed rpm : 450

Rack travel in mm : 7.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 22.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113

Combination No. : 0 403 466 132GA

Injection pump
Pump designation : PES6MW100/120RS1137
EP type number : 0 413 406 131

Governor
Governor design. : RSV400...1250MW2A319
: -19
Governor no. :

Cust. part No. : 3921162

Customer spec. information

Customer : CDC
Motor : 6 CTA-8.3 L
Power KW : 186.0

TEST BENCH REQUIREMENTS

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

D05

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : ± 1.0

Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 11.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 400

Rack travel in mm : 7.10
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 17.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 4.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 132.0

D06

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.00
Rated speed rpm : 1310
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1405
Tolerance 1/min : + 5

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1500

rack travel mm : 4.00
Rated speed rpm : 1405
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Control lever difference
Grad : 30.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 400
rack travel mm : 6.60

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400
rack travel mm : 7.10
Tolerance mm : \pm 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 12.05
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 7.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 17.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.12.97
Test oil : ISO 4113

Combination No. : F 002 ADZ 024HA

Injection pump
Pump designation : PES6A95D320/3RS2881
EP type number : 9 410 037 215

Governor
Governor design. : RSV475...1150AOC896R
Governor no. :

Cust. part No. : 3934126

Customer spec. information

Customer : CDC
Motor : 6BTA
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

D08

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 17.0
Tolerance bar : + 1.0

Prestroke mm : 2.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery blocking

*NW after s.o.d. : 8.50
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.15

Tolerance mm	: + 0.05
<hr/>	
Del. quantity cm ³ /1000 strokes	: 112.5
<hr/>	
Tolerance cm ³ /1000 strokes	: + 1.0
<hr/>	
Check tolerance cm ³ /1000S.	: + 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance cm ³ /1000 strokes	: 4.0
<hr/>	
Check tolerance cm ³ /1000S.	: 6.5
<hr/>	

Rated speed rpm	: 475
Rack travel in mm	: 5.50
Tolerance mm	: + 0.10
Del. quantity cm ³ /1000 strokes	: 16.0
Tolerance cm ³ /1000 strokes	: + 2.0
Check tolerance cm ³ /1000S.	: + 4.5
Spreed	
Tolerance cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring pre-tension click setting x	: 5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1250
Aneroid pressure hPa	: 900
Del. quantity cm ³ /1000 strokes	: 112.5
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 3.0
Spreed	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 6.5

CONTROL LEVER

control lever position degree	: 114.5
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 12.10
Rated speed rpm	: 1335
Tolerance 1/min	: + 5

rack travel mm	: 4.00
Rated speed rpm	: 1445
Tolerance 1/min	: + 5

rack travel mm	: 0.85
Tolerance mm	: + 0.55
Rated speed rpm	: 1550

rack travel mm	: 4.00
Rated speed rpm	: 1455
Tolerance 1/min	: + 15

LOW IDLE

control lever position degree	: 87.5
tolerance degree	: + 4.0

Control lever difference Grad	: 23.0
tolerance degree	: + 6.0

Setting point w/out bumper spring

Rated speed rpm	: 475
rack travel mm	: 5.00
Tolerance mm	: + 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.50
Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1250
rack travel mm : 13.15
Tolerance mm : ± 0.05

Rated speed rpm : 750
rack travel mm : 13.45
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 12.10
Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 780
rack travel mm : 13.20
Tolerance mm : ± 0.20

Pressure hPa : 595
rack travel mm : 12.30
Tolerance mm : ± 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 101.5
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50
Tolerance mm : ± 0.50
Del. quantity
cm³/1000 strokes : 120.5
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 15.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.50
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.97
Test oil : ISO 4113
Combination No. : 0 401 848 821
Injection pump
Pump designation : PE8P120A920/5LS3804
EP type number : 0 411 828 705
Governor
Governor design. : RQV300...1000PA475
: -2
Governor no. : 0 421 813 949
Cust. part No. :

Customer spec. information
Customer : IVECO-FIAT
Motor : 8285.22.004

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075
Outside diameter : 8.0

x inside diameter : 2.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 8- 4- 3- 6
: - 5- 7- 2
Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 11.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 186.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 5.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 24.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(8) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 700
guide sleeve
travel mm : 5.50
Tolerance mm : ± 0.20

Rated speed rpm : 1055
guide sleeve
travel mm : 8.40
Tolerance mm : ± 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.20
Tolerance mm : ± 0.20

Rated speed rpm : 500
guide sleeve
travel mm : 4.00
Tolerance mm : ± 0.30

Rated speed rpm : 1350
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1170

Rack travel in mm : 10.10
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure

hPa : 700

Del. quantity
cm³/1000 strokes : 186.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 115.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 10.10
Rated speed rpm : 1055
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1145
Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 66.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 7.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.15
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 11.15
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.60
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 280
rack travel mm : 9.35
Tolerance mm : \pm 0.15

Pressure hPa : 340
rack travel mm : 10.55
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -

Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 138.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 14.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.97
Test oil : ISO 4113
Combination No. : 0 401 848 832
Injection pump
Pump designation : PE8P120A320LS3868
EP type number : 0 411 828 730
Governor
Governor design. : RQ300/1050PA1345
Governor no. : 0 421 801 823

Cust. part No. :

Customer-spec. information
Customer : DHI
Motor : DV 15 T
Power kW : 310.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.30
Tolerance mm : ± 0.05

Del. quantity	
cm ³ /1000 strokes	: 191.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 10.0

Rated speed rpm	: 300
Rack travel in mm	: 5.10
Tolerance mm	: ± 0.10
Del. quantity	
cm ³ /1000 strokes	: 21.0
Tolerance	
cm ³ /1000 strokes	: ± 3.0
Check tolerance	
cm ³ /1000S.	: ± 6.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 10.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1111
guide sleeve	
travel mm	: 6.56
Tolerance mm	: ± 0.15
Rated speed rpm	: 300
guide sleeve	
travel mm	: 1.95
Tolerance mm	: ± 0.20
Rated speed rpm	: 1050
guide sleeve	
travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 403

guide sleeve	
travel mm	: 4.96
Tolerance mm	: ± 0.10

Rated speed rpm	: 480
guide sleeve	
travel mm	: 6.00
Tolerance mm	: ± 0.10

Rated speed rpm	: 1300
guide sleeve	
travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever	
position degree	: 109
Rated speed rpm	: 600

Rack travel in mm	: 20.00
Tolerance mm	: ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure	
hPa	: 1000
Del. quantity	
cm ³ /1000 strokes	: 191.0
Tolerance	
cm ³ /1000 strokes	: ± 1.0
Check tolerance	
cm ³ /1000S.	: ± 4.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 6.0
Check tolerance	
cm ³ /1000S.	: 10.0

CONTROL LEVER

control lever	
position degree	: 31.0
tolerance degree	: ± 4.0

control lever	
position degree	: 93.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 10.30
Rated speed rpm	: 1095
Tolerance 1/min	: ± 5

rack travel mm : 4.00
Rated speed rpm : 1185
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 75.0
tolerance degree : \pm 4.0

control lever
position degree : 13.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 6.70

Testing:

Rated speed rpm : 300
rack travel mm : 5.10
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 11.30
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 11.30
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 11.30
Tolerance mm : \pm 0.05

Rated speed rpm : 500

Pressure hPa : -
rack travel mm : 8.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 580
rack travel mm : 10.55
Tolerance mm : \pm 0.15

Pressure hPa : 280
rack travel mm : 9.05
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 200
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 180
Check
speed 1/min : $<$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 204.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 94.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 195.0

Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000S. : ± 24.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.10
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000S. : 10.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113
Combination No. : 0 402 046 862
Injection pump
Pump designation : PES6P120A320RS3337
EP type number : 0 412 026 770
Governor
Governor design. : RQV300...1250PA1149K
Governor no. : 0 421 815 416

Cust. part No. : CCEP 5141A 66-218

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06-02-26 V4
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.18
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 10.50
Difference ° CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 11.20
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 152.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -6.30
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 34.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1346
guide sleeve
travel mm : 10.55
Tolerance mm : + 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.31

Tolerance mm : + 0.20

Rated speed rpm : 905
guide sleeve
travel mm : 6.54
Tolerance mm : + 0.25

Rated speed rpm : 381
guide sleeve
travel mm : 2.38
Tolerance mm : + 0.25

Rated speed rpm : 431
guide sleeve
travel mm : 2.98
Tolerance mm : + 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.77
Tolerance mm : + 0.25

Rated speed rpm : 1580
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1380

Rack travel in mm : 10.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 152.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 297.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1325
Tolerance 1/min : \pm 15

rack travel mm : -7.20
Rated speed rpm : 1420
Tolerance 1/min : \pm 5

rack travel mm : -10.70
Tolerance mm : \pm 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 244.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $<$ -5.20

Testing:

Rated speed rpm : 300
rack travel mm : -6.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850
rack travel mm : -1.35
Tolerance mm : \pm 0.15

Rated speed rpm : 350
rack travel mm : -1.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

D20

Rated speed rpm : 1250
Pressure hPa : 1000

Rated speed rpm : 1250
Pressure hPa : -
rack travel mm : -1.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 160
rack travel mm : -1.30
Tolerance mm : \pm 0.10

Pressure hPa : 280
rack travel mm : -0.25
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 124.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : -1.60
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 1250
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -6.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 34.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 046 864

Injection pump
Pump designation : PES6P120A320RS3337
: -1
EP type number : 0 412 026 772

Governor
Governor design. : RQV300...1250PA1149
: -1K
Governor no. : 0 421 815 421

Cust. part No. : CCEP 5142B 66-219

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 06-02-26 W4
Power KW : 155.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

D22

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.35
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende
betw. rack trav.
mm : 21.00
and maximum rack
travel : 13.00

Difference * CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 194.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -8.30
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 21.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 5.0

Spreed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1328
guide sleeve
travel mm : 9.98

D23

Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : \pm 0.20

Rated speed rpm : 876
guide sleeve
travel mm : 6.02
Tolerance mm : \pm 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.59
Tolerance mm : \pm 0.25

Rated speed rpm : 1600
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1415

Rack travel in mm : 12.15
Tolerance mm : \pm 2.03

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 194.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spreed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1317
Tolerance 1/min : + 15

rack travel mm : -8.80
Rated speed rpm : 1450
Tolerance 1/min : + 5

rack travel mm : -12.30
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 245.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : < -7.50

Testing:

Rated speed rpm : 300
rack travel mm : -8.30
Tolerance mm : + 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 850
rack travel mm : -1.75
Tolerance mm : + 0.05

Rated speed rpm : 350
rack travel mm : -1.50
Tolerance mm : + 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1000
rack travel mm : -1.40

Rated speed rpm : 1000

D24

Pressure hPa : -
rack travel mm : -3.50
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 160
rack travel mm : -3.10
Tolerance mm : + 0.15

Pressure hPa : 280
rack travel mm : -2.05
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
Rated speed rpm : < 240

Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 139.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0

rack travel mm : -1.50
Tolerance mm : + 0.30

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -8.30
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 21.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 046 872

Injection pump
Pump designation : PES6P120A320RS3337
EP type number : 0 412 026 770

Governor
Governor design. : RQV300...1250PA1246K
Governor no. : 0 421 815 480

Cust. part No. : CCEP 5155A 66-217

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 06-02-26 U4
Power kW : 111.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 135
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 0.08
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference °CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 10.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 142.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -5.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1333
guide sleeve
travel mm : 10.40
Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : \pm 0.20

Rated speed rpm : 900
guide sleeve
travel mm : 6.50
Tolerance mm : \pm 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.77
Tolerance mm : \pm 0.25

Rated speed rpm : 1580
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1400

Rack travel in mm : 10.50
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 142.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00

Rated speed rpm : 1305
Tolerance 1/min : \pm 15

rack travel mm : -6.60
Rated speed rpm : 1400
Tolerance 1/min : \pm 5

rack travel mm : -10.10
Tolerance mm : \pm 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 242.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $<$ -4.80

Testing:

Rated speed rpm : 300
rack travel mm : -5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 750
rack travel mm : -1.65
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -2.55
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 130
Rated speed rpm : $<$ 245

Check
speed 1/min : $>$ 110
Check
speed 1/min : $<$ 255

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 102.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : -2.55
Tolerance mm : \pm 0.20

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 046 877

Injection pump
Pump designation : PES6P120A320RS3337
: -1
EP type number : 0 412 026 772

Governor
Governor design. : RQV300...1250PA1149
: -2K
Governor no. : 0 421 815 504

Cust. part No. : CCEP 5158A 66-218

Customer spec. information
Customer : RENAULT V.I.
Motor : MIDR 06-02-26 V4
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 084

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

E01

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.35
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference
betw. rack trav.
mm : 21.00
and maximum rack
travel : 13.00
Difference °CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 12.30
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 145.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1311

guide sleeve
travel mm : 9.80

Tolerance mm : \pm 0.15

Rated speed rpm : 300
guide sleeve
travel mm : 1.31
Tolerance mm : \pm 0.20

Rated speed rpm : 868
guide sleeve
travel mm : 5.97
Tolerance mm : \pm 0.25

Rated speed rpm : 510
guide sleeve
travel mm : 3.59
Tolerance mm : \pm 0.25

Rated speed rpm : 1600
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1400

Rack travel in mm : 11.60
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 298.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1320

Tolerance 1/min : + 15
rack travel mm : -8.30
Rated speed rpm : 1440
Tolerance 1/min : + 5
rack travel mm : -11.80
Tolerance mm : + 0.50
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 242.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : < 6.80

Testing:

Rated speed rpm : 300
rack travel mm : -7.80
Tolerance mm : + 0.10
Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1250
Rated speed rpm : 850
rack travel mm : -1.40
Tolerance mm : + 0.15

Rated speed rpm : 350
rack travel mm : -1.90
Tolerance mm : + 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1000
Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : -2.35
Tolerance mm : + 0.20

E03

MEASUREMENT

Rated speed rpm : 1000
Pressure hPa : 180
rack travel mm : -1.95
Tolerance mm : + 0.10
Pressure hPa : 240
rack travel mm : -1.50
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
Rated speed rpm : < 240
Check
speed 1/min : > 155
Check
speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 124.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

rack travel mm : -1.90
Tolerance mm : + 0.30

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 103.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 101.0

Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -7.80
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : +- 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 05.12.97

Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump

Pump designation : PES6P110A320RS3329

EP type number : 0 412 016 743

Governor

Governer design. : RQ325...1250PA1370

Governer no. : 0 421 801 828

Cust. part No. : 1305236

Customer spec. information

Customer : DAF

Motor : NS177M

Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 140

Tolerance l/h : ± 20.0

Test nozzle holde assembly

: 1 688 901 101

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

E05

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.05

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25

Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 149.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000s.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000s.	: 7.5

Rated speed rpm	: 325
Rack travel in mm	: 4.40
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 26.0
Tolerance cm ³ /1000 strokes	: ± 2.5
Check tolerance cm ³ /1000s.	: ± 6.0
Speed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000s.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1292
guide sleeve travel mm	: 6.37
Tolerance mm	: ± 0.15
Rated speed rpm	: 325
guide sleeve travel mm	: 1.99
Tolerance mm	: ± 0.20
Rated speed rpm	: 1000
guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 426

guide sleeve travel mm	: 3.48
Tolerance mm	: ± 0.10
Rated speed rpm	: 590
guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 1460
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

Rated speed rpm	: 600
Rack travel in mm	: 20.00
Tolerance mm	: ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure hPa	: 1500
Del. quantity cm ³ /1000 strokes	: 149.5
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000s.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000s.	: 7.5

CONTROL LEVER

control lever position degree	: 94.0
tolerance degree	: ± 4.0
RATED SPEED	
rack travel mm	: 11.25
Rated speed rpm	: 1290
Tolerance 1/min	: ± 5
Check speed 1/min	: ± 10
rack travel mm	: 4.00
Rated speed rpm	: 1365
Tolerance 1/min	: ± 15
Check speed 1/min	: ± 20

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 72.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : > 6.50

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : ± 0.10

rack travel mm : 2.00
Rated speed rpm : 385
Tolerance 1/min : ± 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : ± 0.05

Rated speed rpm : 1250
rack travel mm : 12.25
Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 12.25
Tolerance mm : ± 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 6.80
Tolerance mm : ± 0.20

MEASUREMENT

E07

Rated speed rpm : 600

Pressure hPa : 430
rack travel mm : 10.90
Tolerance mm : ± 0.05

Pressure hPa : 220
rack travel mm : 8.10
Tolerance mm : ± 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.40
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : ± 2.5
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 03.11.97
Test oil : ISO 4113

Combination No. : 0 402 648 707

Injection pump
Pump designation : PE8P120A320LS7915
EP type number : 0 412 628 929

Governor
Governor design. : RQ300/1150PA1371
Governor no. : 0 421 801 829

Cust. part No. :

Customer-spec. information
Customer : DHI
Motor : DV15TC
Power KW : 272.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 110
Tolerance L/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

E08

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 16.00
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 220.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 5.80

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1204

guide sleeve
travel mm : 6.35

Tolerance mm : ± 0.15

Rated speed rpm : 300

guide sleeve
travel mm : 1.29

Tolerance mm : ± 0.20

Rated speed rpm : 1150

guide sleeve
travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 456

guide sleeve
travel mm : 3.78

Tolerance mm : ± 0.10

Rated speed rpm : 600

guide sleeve
travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 1380

guide sleeve
travel mm : 11.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : 109

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 220.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever

position degree : 35.0

tolerance degree : ± 4.0

control lever

position degree : 96.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.60

Rated speed rpm : 1202

Tolerance 1/min : ± 8

rack travel mm : 4.00
Rated speed rpm : 1290
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

control lever
position degree : 10.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 7.02

Testing:

Rated speed rpm : 300
rack travel mm : 5.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 437
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 14.35
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 14.35
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 14.35
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.15
Tolerance mm : \pm 0.20

2-stage LDA setting

Rated speed rpm : 500
Pressure hPa : 600
rack travel mm : 12.40

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 500
rack travel mm : 11.80
Tolerance mm : \pm 0.20

Pressure hPa : 250
rack travel mm : 9.10
Tolerance mm : \pm 0.05

Pressure hPa : 900
rack travel mm : 13.90
Tolerance mm : \pm 0.20

Pressure hPa : 725
rack travel mm : 12.90
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 205
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 185

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 109.0

Tolerance
cm³/1000 strokes : +- 1.0
Check tolerance
cm³/1000S. : +- 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 195.0
Tolerance
cm³/1000 strokes : +- 10.0
Check tolerance
cm³/1000S. : +- 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : +- 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : +- 3.0
Check tolerance
cm³/1000S. : +- 6.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 01.12.97
Test oil : ISO 4113

Combination No. : 0 402 648 974

Injection pump
Pump designation : PE8P120A320LS7915
EP type number : 0 412 628 929

Governor
Governor design. : RQ300/1150PA1374
Governor no. : 0 421 801 833

Cust. part No. :

Customer spec. information
Customer : DHI
Motor : DV15TC
Power KW : 272.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.20
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 16.00
Tolerance mm : ± 1.50

Firing order : 8- 7- 2- 6- 3
: - 5- 4- 1

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 14.35
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 220.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1208
guide sleeve

travel mm : 6.35
Tolerance mm : ± 0.15

Rated speed rpm : 300

guide sleeve
travel mm : 1.20

Tolerance mm : ± 0.20

Rated speed rpm : 1150

guide sleeve
travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 457

guide sleeve
travel mm : 3.70

Tolerance mm : ± 0.10

Rated speed rpm : 600

guide sleeve
travel mm : 6.00

Tolerance mm : ± 0.10

Rated speed rpm : 1380

guide sleeve
travel mm : 11.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : 109

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure

hPa : -

Del. quantity

cm³/1000 strokes : 220.5

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spread

Tolerance

cm³/1000 strokes : 7.0

Check tolerance

cm³/1000S. : 10.0

CONTROL LEVER

control lever

position degree : 35.0

tolerance degree : ± 4.0

control lever

position degree : 96.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 13.35

Rated speed rpm : 1202

Tolerance 1/min : ± 8

rack travel mm : 4.00

Rated speed rpm : 1295

Tolerance 1/min : + 15
 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 71.0
 tolerance degree : + 4.0

control lever
 position degree : 10.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 7.01

Testing:

Rated speed rpm : 300
 rack travel mm : 5.80
 Tolerance mm : + 0.10

rack travel mm : 2.00
 Rated speed rpm : 372
 Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 1150
 rack travel mm : 14.35
 Tolerance mm : + 0.05

Rated speed rpm : 650
 rack travel mm : 14.35
 Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1500
 rack travel mm : 14.35
 Tolerance mm : + 0.05

Rated speed rpm : 500
 Pressure hPa : -

rack travel mm : 9.00
 Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 650
 rack travel mm : 12.30
 Tolerance mm : + 0.20

Pressure hPa : 250
 rack travel mm : 10.00
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 205
 Rated speed rpm : < 240

Check
 speed 1/min : > 185

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : -
 Rated speed rpm : 650
 Del. quantity
 cm³/1000 strokes : 226.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 137.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Del. quantity
 cm³/1000 strokes : 203.0
 Tolerance
 cm³/1000 strokes : + 10.0
 Check tolerance
 cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000s. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.08.97
Test oil : ISO 4113
Combination No. : 0 402 736 858
Injection pump
Pump designation : PES6P110A120RS7214
EP type number : 0 412 716 805

Governor
Governor design. : RQV350...1200PA964
: -28K
Governor no. : 0 421 815 428

Cust. part No. : 3282464

Customer spec. information
Customer : CUMMINS
Motor : 6CTA-A
Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity
min. l/h : 120
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.40
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 5.50
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 12.35
Tolerance mm : \pm 0.05

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1200
guide sleeve
travel mm : 9.10
Tolerance mm : \pm 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 1.80
Tolerance mm : \pm 0.20

Rated speed rpm : 450
guide sleeve
travel mm : 3.30
Tolerance mm : \pm 0.20

Rated speed rpm : 700
guide sleeve
travel mm : 6.10
Tolerance mm : \pm 0.20

Rated speed rpm : 1400
guide sleeve
travel mm : 10.90
Tolerance mm : \pm 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1330

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

CONTROL LEVER

control lever
position degree : 119.0

tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 11.30
Rated speed rpm : 1250
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1380
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 275

CRT mm min. : $>$ 7.20

Testing:

Rated speed rpm : 350
rack travel mm : 5.50
Tolerance mm : \pm 0.10

Rated speed rpm : 423

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 11.10
Tolerance mm : \pm 0.20

Rated speed rpm : 550
rack travel mm : 11.00
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200
rack travel mm : 12.35
Tolerance mm : \pm 0.05

Rated speed rpm : 1200
Pressure hPa : -
rack travel mm : 7.90
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1200
Pressure hPa : 575
rack travel mm : 11.40
Tolerance mm : \pm 0.20

Pressure hPa : 225
rack travel mm : 8.95
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 290

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 300

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

rack travel mm : 11.00
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 91.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 25.0

LOW IDLE

Rack travel in mm : 5.50
Tolerance mm : \pm 0.10

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 744 801

Injection pump
Pump designation : PES4P120A320RS7380
EP type number : 0 412 724 802

Governor
Governor design. : RQV275...1200PA1232K
Governor no. : 0 421 815 469

Cust. part No. : CCEP 51498 66-237

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 04-02-26 B4
Power KW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 105
Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW before FB : 0.30
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference °CS : 1.50

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -6.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1272

guide sleeve
travel mm : 9.31

Tolerance mm : + 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : + 0.20

Rated speed rpm : 894
guide sleeve
travel mm : 6.60
Tolerance mm : + 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.01
Tolerance mm : + 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1482

Rack travel in mm : 11.70
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1265

Tolerance 1/min : + 15
rack travel mm : -8.80
Rated speed rpm : 1410
Tolerance 1/min : + 5

rack travel mm : -12.30
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 253.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : < -4.70

Testing:

Rated speed rpm : 325
rack travel mm : -6.80
Tolerance mm : + 0.10

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200

Rated speed rpm : 700
rack travel mm : -1.15
Tolerance mm : + 0.10

Rated speed rpm : 350
rack travel mm : -2.90
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -4.10
Tolerance mm : + 0.20

E21

MEASUREMENT

Rated speed rpm : 1200

Pressure hPa : 200
rack travel mm : -3.40
Tolerance mm : + 0.20

Pressure hPa : 320
rack travel mm : -2.75
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 155
Rated speed rpm : < 275

Check
speed 1/min : > 135
Check
speed 1/min : < 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 240.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

rack travel mm : -2.90
Tolerance mm : + 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 161.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 90.0

Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : -6.80
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97

Test oil : ISO 4113

Combination No. : 0 402 744 804

Injection pump
Pump designation : PES4P120A320RS7402
EP type number : 0 412 724 804

Governor
Governor design. : RQV275...1200PA1257K
Governor no. : 0 421 815 494

Cust. part No. : CCEP 5154A 66-238

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 04-02-26 A4
Power KW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.10

Tolerance mm : ± 0.05

Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00

Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.30

Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00

and maximum rack
travel : 13.00

Difference °CS : 2.40

CRT ZERO POSITION

Rack travel in mm : 13.40
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -8.90
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1257

guide sleeve
travel mm : 9.18

Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

Rated speed rpm : 888
guide sleeve
travel mm : 6.57
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.01
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1473

Rack travel in mm : 12.40
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1245

Tolerance 1/min : + 5
rack travel mm : -9.40
Rated speed rpm : 1405
Tolerance 1/min : + 15

rack travel mm : -12.90
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 250.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. : > -7.40

Testing:

Rated speed rpm : 325
rack travel mm : -8.90
Tolerance mm : + 0.10

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200

Rated speed rpm : 850
rack travel mm : -1.00
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : -6.00
Tolerance mm : + 0.20

Rated speed rpm : 700
rack travel mm : -1.80
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200

Rated speed rpm : 1200
Pressure hPa : -
rack travel mm : -3.20
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1200

Pressure hPa : 200
rack travel mm : -2.40
Tolerance mm : + 0.20

Pressure hPa : 440
rack travel mm : -1.10
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 130
Rated speed rpm : < 275

Check
speed 1/min : > 110
Check
speed 1/min : < 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1200
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 249.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure

hPa : -
Rated speed rpm : 700
rack travel mm : -6.00
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

Aneroid pressure

hPa : -
Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : -8.90
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 744 807

Injection pump
Pump designation : PES4P120A320RS7380
EP type number : 0 412 724 802

Governor
Governor design. : RGV275...1200PA1232
: -1K
Governor no. : 0 421 815 552

Cust. part No. : CCEP5165 66-237

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 04-02-26 B4
Power KW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 105
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : 349.70
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 1.50

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -6.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1272

guide sleeve
travel mm : 9.31

Tolerance mm : \pm 0.15

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

Rated speed rpm : 894
guide sleeve
travel mm : 6.60
Tolerance mm : \pm 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.01
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1482

Rack travel in mm : 11.70
Tolerance mm : \pm 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 239.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1265

Tolerance 1/min : + 15
 rack travel mm : -8.80
 Rated speed rpm : 1410
 Tolerance 1/min : + 5
 rack travel mm : -12.30
 Tolerance mm : + 0.50
 Rated speed rpm : 1500

LOW IDLE

control lever
 position degree : 253.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
 CRT mm min. : < -4.70

Testing:

Rated speed rpm : 325
 rack travel mm : -6.80
 Tolerance mm : + 0.10
 Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200
 Rated speed rpm : 700
 rack travel mm : -1.15
 Tolerance mm : + 0.10
 Rated speed rpm : 350
 rack travel mm : -2.90
 Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
 Pressure hPa : 1200
 Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : -4.10
 Tolerance mm : + 0.20

F01

MEASUREMENT

Rated speed rpm : 1200
 Pressure hPa : 200
 rack travel mm : -3.40
 Tolerance mm : + 0.20
 Pressure hPa : 320
 rack travel mm : -2.75
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 155
 Rated speed rpm : < 275
 Check
 speed 1/min : > 135
 Check
 speed 1/min : < 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1200
 Rated speed rpm : 700
 Del. quantity
 cm³/1000 strokes : 240.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

rack travel mm : -2.90
 Tolerance mm : + 0.20

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 161.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 90.0

Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : -6.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 744 808

Injection pump
Pump designation : PES4P120A320RS7402
EP type number : 0 412 724 804

Governor
Governor design. : RGV275...1200PA1257
: -1K
Governor no. : 0 421 815 553

Cust. part No. : CCEP5166 66-238

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDR 04-02-26 A4
Power kW : 100.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 125
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -10.30
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 13.00
Difference °CS : 2.40

CRT ZERO POSITION

Rack travel in mm : 13.40
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -8.90
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 33.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1257
guide sleeve
travel mm : 9.18
Tolerance mm : + 0.15

FD4

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : + 0.20

Rated speed rpm : 888
guide sleeve
travel mm : 6.57
Tolerance mm : + 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.01
Tolerance mm : + 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1473

Rack travel in mm : 12.40
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 261.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1245

Tolerance 1/min : + 5
rack travel mm : -9.40
Rated speed rpm : 1405
Tolerance 1/min : + 15

rack travel mm : -12.90
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 251.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : > -7.40

Testing:

Rated speed rpm : 325
rack travel mm : -8.90
Tolerance mm : + 0.10

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1200

Rated speed rpm : 850
rack travel mm : -1.00
Tolerance mm : + 0.10

Rated speed rpm : 700
rack travel mm : -6.00
Tolerance mm : + 0.20

Rated speed rpm : 700
rack travel mm : -1.80
Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1200
Pressure hPa : 1200

Rated speed rpm : 1200
Pressure hPa : -
rack travel mm : -3.20
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1200

Pressure hPa : 200
rack travel mm : -2.40
Tolerance mm : + 0.20

Pressure hPa : 440
rack travel mm : -1.10
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 130
Rated speed rpm : < 275

Check
speed 1/min : > 110
Check
speed 1/min : < 285

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 850
Del. quantity
cm³/1000 strokes : 249.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 700
rack travel mm : -6.00
Tolerance mm : + 0.20
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : + 4.0
Check tolerance
cm³/1000S. : + 8.0

Aneroid pressure
hPa : -
Rated speed rpm : 1200

Del. quantity
cm³/1000 strokes : 183.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : -8.90
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 33.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 746 602

Injection pump
Pump designation : PES6P120A320RS7359
: -1
EP type number : 0 412 726 949

Governor
Governor design. : RQ275/1050PA1217-1
Governor no. : 0 421 801 798

Cust. part No. : CCEP 5152A 66-229

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDRO62045 R41
Power KW : 223.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.70
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.45
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.40
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm	:	600
Tolerance mm	:	± 0.05
Del. quantity cm ³ /1000 strokes	:	285.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
Spreed		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

Rated speed rpm	:	300
Rack travel in mm	:	-7.60
Tolerance mm	:	± 0.10
Del. quantity cm ³ /1000 strokes	:	23.0
Tolerance cm ³ /1000 strokes	:	± 2.0
Check tolerance cm ³ /1000S.	:	± 5.0
Spreed		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1122
guide sleeve travel mm	:	6.36
Tolerance mm	:	± 0.15
Rated speed rpm	:	300
guide sleeve travel mm	:	2.18
Tolerance mm	:	± 0.20
Rated speed rpm	:	1050
guide sleeve travel mm	:	6.00

F08

Tolerance mm	:	± 0.10
Rated speed rpm	:	401
guide sleeve travel mm	:	5.00
Tolerance mm	:	± 0.10
Rated speed rpm	:	480
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10
Rated speed rpm	:	1330
guide sleeve travel mm	:	11.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	109
Rated speed rpm	:	600
Rack travel in mm	:	20.00
Tolerance mm	:	± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	285.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
Spreed		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	276.0
tolerance degree	:	± 4.0
RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1115
Tolerance 1/min	:	± 15
rack travel mm	:	-9.40

Rated speed rpm : 1240
 Tolerance 1/min : + 5
 rack travel mm : -12.90
 Tolerance mm : + 0.50
 Rated speed rpm : 1350

LOW IDLE

control lever
 position degree : 255.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
 CRT mm min. : > -4.90

Testing:

Rated speed rpm : 300
 rack travel mm : -7.60
 Tolerance mm : + 0.10

rack travel mm : -11.30
 Rated speed rpm : 395
 Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 600
 Tolerance mm : + 0.05

Rated speed rpm : 1050
 Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
 Pressure hPa : 1000
 Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : -2.45
 Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

F09

Pressure hPa : 400
 rack travel mm : -0.70
 Tolerance mm : + 0.15

Pressure hPa : 240
 rack travel mm : -1.65
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
 Rated speed rpm : < 195

Check
 speed 1/min : > 80
 Check
 speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1000
 Rated speed rpm : 1050
 Del. quantity
 cm³/1000 strokes : 293.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000s. : + 6.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 174.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 145.0
 Tolerance
 cm³/1000 strokes : + 15.0
 Check tolerance
 cm³/1000s. : + 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -7.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 09.12.97

Test oil : ISO 4113

Combination No. : 0 402 746 603

Injection pump

Pump designation : PES6P120A320RS7359

EP type number : 0 412 726 925

Governor

Governor design. : RQ300/1050PA999-7

Governor no. : 0 421 801 799

Cust. part No. : CCEP 5153 66-224

Customer-spec. information

Customer : RENAULT V.I.

Motor : MIHRO62045 A41

Power KW : 188.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holde
assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

F11

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.70

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.25

Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.50

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.40

Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm	:	600
Tolerance mm	:	± 0.05
Del. quantity cm ³ /1000 strokes	:	197.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
Spread		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

Rated speed rpm	:	275
Rack travel in mm	:	-6.60
Tolerance mm	:	± 0.10
Del. quantity cm ³ /1000 strokes	:	38.0
Tolerance cm ³ /1000 strokes	:	± 2.0
Check tolerance cm ³ /1000S.	:	± 5.0
Spread		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1145
guide sleeve travel mm	:	6.55
Tolerance mm	:	± 0.15
Rated speed rpm	:	275
guide sleeve travel mm	:	1.75
Tolerance mm	:	± 0.20
Rated speed rpm	:	1050
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10

Rated speed rpm	:	594
guide sleeve travel mm	:	5.11
Tolerance mm	:	± 0.10
Rated speed rpm	:	720
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10
Rated speed rpm	:	1380
guide sleeve travel mm	:	11.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	109
Rated speed rpm	:	800
Rack travel in mm	:	20.00
Tolerance mm	:	± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	197.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
Spread		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	276.0
tolerance degree	:	± 4.0
RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1120
Tolerance 1/min	:	± 15
rack travel mm	:	-8.40
Rated speed rpm	:	1250

Tolerance 1/min : + 5
rack travel mm : -11.90
Tolerance mm : + 0.50
Rated speed rpm : 1375

LOW IDLE

control lever
position degree : 254.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 175
CRT mm min. : < -4.70

Testing:

Rated speed rpm : 275
rack travel mm : -6.60
Tolerance mm : + 0.10

rack travel mm : -10.40
Rated speed rpm : 465
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : + 0.05

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -1.75
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 220

F13

rack travel mm : -0.85
Tolerance mm : + 0.15
Pressure hPa : 160
rack travel mm : -1.25
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -6.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97

Test oil : ISO 4113

Combination No. : 0 402 746 608

Injection pump

Pump designation : PES6P120A320RS7359

EP type number : 0 412 726 925

Governor

Governor design. : RQ275/1050PA1275

Governor no. : 0 421 801 805

Cust. part No. : CCEP 5157A 66-222

Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDRO62045 F/C41

Power KW : 152.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. L/h : 220

Tolerance L/h : ± 10.0

Test nozzle holder assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.70

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.25

Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.95

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.70
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1050

Del. quantity
cm³/1000 strokes : 176.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.10
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1122
guide sleeve
travel mm : 7.06
Tolerance mm : \pm 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 2.44
Tolerance mm : \pm 0.20

Rated speed rpm : 1050
guide sleeve
travel mm : 6.70
Tolerance mm : \pm 0.10

Rated speed rpm : 648
guide sleeve
travel mm : 6.18
Tolerance mm : \pm 0.10

Rated speed rpm : 375
guide sleeve
travel mm : 5.00
Tolerance mm : \pm 0.10

Rated speed rpm : 450
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1300
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

Rated speed rpm : 873
guide sleeve
travel mm : 6.52
Tolerance mm : \pm 0.10

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 500

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 176.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 276.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1115
Tolerance 1/min : \pm 5

rack travel mm : -7.70
Rated speed rpm : 1205
Tolerance 1/min : \pm 15

rack travel mm : -11.20
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 256.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $<$ -4.20

Testing:

Rated speed rpm : 275
rack travel mm : -6.10
Tolerance mm : \pm 0.10

rack travel mm : -9.70
Rated speed rpm : 365
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1050

Rated speed rpm : 600
rack travel mm : 0.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 1.00
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -1.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 280
rack travel mm : 0.65
Tolerance mm : \pm 0.15

Pressure hPa : 160
rack travel mm : -0.15
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 193.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 149.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 155.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000s. : \pm 19.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -6.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 746 628

Injection pump
Pump designation : PES6P120A320RS7359
: -2
EP type number : 0 412 726 966

Governor
Governor design. : RQ300/1050PA999-7
Governor no. : 0 421 801 799

Cust. part No. : CCEP 5162 66-246

Customer spec. information
Customer : RENAULT V.I.
Motor : MIHR062045 C41
Power KW : 217.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.25
Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.45
Tolerance : ± 0.50

Check
tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.00
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm	:	600
Tolerance mm	:	± 0.05
Del. quantity cm ³ /1000 strokes	:	275.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
Spreed		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

Rated speed rpm	:	275
Rack travel in mm	:	-6.60
Tolerance mm	:	± 0.10
Del. quantity cm ³ /1000 strokes	:	30.0
Tolerance cm ³ /1000 strokes	:	± 2.0
Check tolerance cm ³ /1000S.	:	± 5.0
Spreed		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1117
guide sleeve travel mm	:	6.54
Tolerance mm	:	± 0.15
Rated speed rpm	:	275
guide sleeve travel mm	:	2.18
Tolerance mm	:	± 0.20
Rated speed rpm	:	1050
guide sleeve travel mm	:	6.00

Tolerance mm	:	± 0.10
Rated speed rpm	:	536
guide sleeve travel mm	:	5.00
Tolerance mm	:	± 0.10
Rated speed rpm	:	680
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10
Rated speed rpm	:	1360
guide sleeve travel mm	:	11.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	109
Rated speed rpm	:	800
Rack travel in mm	:	20.00
Tolerance mm	:	± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	275.0
Tolerance cm ³ /1000 strokes	:	± 1.0
Check tolerance cm ³ /1000S.	:	± 4.0
Spreed		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	274.0
tolerance degree	:	± 4.0
RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1110
Tolerance 1/min	:	± 5
rack travel mm	:	-9.00

Rated speed rpm : 1260
Tolerance 1/min : \pm 15

rack travel mm : -12.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1375

LOW IDLE

control lever
position degree : 253.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. : $<$ -4.30

Testing:

Rated speed rpm : 275
rack travel mm : -6.60
Tolerance mm : \pm 0.10

rack travel mm : -11.00
Rated speed rpm : 520
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 600
Tolerance mm : \pm 0.05

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.20
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 360
rack travel mm : -0.45
Tolerance mm : \pm 0.15

Pressure hPa : 200
rack travel mm : -1.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 195

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -6.60
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 30.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 09.12.97

Test oil : ISO 4113

Combination No. : 0 402 746 640

Injection pump

Pump designation : PES6P120A320RS7359

EP type number : 0 412 726 925

Governor

Governor design. : RQV300...1050PA1191

Governor no. : 0 421 814 114

Cust. part No. : CCEP 5147C 66-223

Customer-spec. information

Customer : RENAULT V.I.

Motor : MIDR 06.20.45 C4

Power kW : 188.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Test nozzle holder assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

F23

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.70

Tolerance mm : ± 0.50

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.25

Tolerance mm : ± 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -30°

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.95

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.70

Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm	:	700
<hr/>		
Del. quantity cm ³ /1000 strokes	:	199.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ 4.0
<hr/>		
Speed		
<hr/>		
Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		

Rated speed rpm	:	300
Rack travel in mm	:	-7.20
Tolerance mm	:	+ 0.10
Del. quantity cm ³ /1000 strokes	:	31.0
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000S.	:	+ 5.0
Speed		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1140
guide sleeve travel mm	:	8.49
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	300
guide sleeve travel mm	:	1.33
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	754
guide sleeve travel mm	:	6.10
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	365

F24

guide sleeve travel mm	:	2.40
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	415
guide sleeve travel mm	:	3.28
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	460
guide sleeve travel mm	:	3.86
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1460
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1230
<hr/>		
Rack travel in mm	:	11.70
Tolerance mm	:	+ 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	700
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	199.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 4.0
Speed		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	302.0
tolerance degree	:	+ 4.0

RATED SPEED		
rack travel mm	:	-1.00
Rated speed rpm	:	1150
Tolerance 1/min	:	+ 5

rack travel mm : -8.70
Rated speed rpm : 1305
Tolerance 1/min : + 15

rack travel mm : -12.20
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 266.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.20
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm max. : < -4.80

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 700

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -1.20
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 140
rack travel mm : -0.80
Tolerance mm : + 0.15

F25

Pressure hPa : 200
rack travel mm : -0.35
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : -7.20
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113
Combination No. : 0 402 746 645
Injection pump
Pump designation : PES6P120A320RS7364
EP type number : 0 412 726 930
Governor
Governor design. : RQV300...1050PA1204
Governor no. : 0 421 814 123

Cust. part No. : CCEP 5148A 66-236

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.20.45D41
Power KW : 219.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.55
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

*NW after s.o.d. : -0.40
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 13.90
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm	:	600
<hr/>		
Del. quantity cm ³ /1000 strokes	:	290.0
<hr/>		
Tolerance cm ³ /1000 strokes	:	+ 1.0
<hr/>		
Check tolerance cm ³ /1000S.	:	+ 4.0
<hr/>		
Spread		
<hr/>		
Tolerance cm ³ /1000 strokes	:	5.0
<hr/>		
Check tolerance cm ³ /1000S.	:	9.0
<hr/>		

Rated speed rpm	:	300
Rack travel in mm	:	-7.60
Tolerance mm	:	+ 0.10
Del. quantity cm ³ /1000 strokes	:	26.0
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000S.	:	+ 5.0
Spread		
Tolerance cm ³ /1000 strokes	:	8.0
Check tolerance cm ³ /1000S.	:	12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1135
guide sleeve travel mm	:	8.45
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	300
guide sleeve travel mm	:	1.33
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	752
guide sleeve travel mm	:	6.09
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	365

guide sleeve travel mm	:	2.40
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	415
guide sleeve travel mm	:	3.28
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	460
guide sleeve travel mm	:	3.86
Tolerance mm	:	+ 0.25
<hr/>		
Rated speed rpm	:	1460
guide sleeve travel mm	:	11.50
Tolerance mm	:	+ 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	- 1
Rated speed rpm	:	1230
<hr/>		
Rack travel in mm	:	11.70
Tolerance mm	:	+ 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	600
Aneroid pressure hPa	:	1000
Del. quantity cm ³ /1000 strokes	:	290.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 4.0
Spread		
Tolerance cm ³ /1000 strokes	:	5.0
Check tolerance cm ³ /1000S.	:	9.0

CONTROL LEVER

control lever position degree	:	303.0
tolerance degree	:	+ 4.0

RATED SPEED rack travel mm	:	-1.00
Rated speed rpm	:	1135
Tolerance 1/min	:	+ 5

rack travel mm : -9.90
Rated speed rpm : 1305
Tolerance 1/min : + 15

rack travel mm : -13.40
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 267.0
tolerance degree : + 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.60
Tolerance mm : + 0.10

Rated speed rpm : 200

CRT mm max. : < -5.10

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.50
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 240
rack travel mm : -1.45
Tolerance mm : + 0.15

601

Pressure hPa : 400
rack travel mm : -0.50
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 230

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 298.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : + 0.75
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -7.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.12.97
Test oil : ISO 4113
Combination No. : 0 402 746 647
Injection pump
Pump designation : PES6P120A720RS7366
EP type number : 0 412 726 933
Governor
Governor design. : RQV275...1100PA1208K
Governor no. : 0 421 815 459

Cust. part No. :

Customer-spec. information
Customer : IVECO-FRANCE
Motor : 8460.41.4000

TEST BENCH REQUIREMENTS

Inlet line : 4.2
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 076
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 20.50
Tolerance mm : ± 0.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1100
Rack travel in mm : 12.45
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 276.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0
Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 6.50
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1155
guide sleeve
travel mm : 9.75
Tolerance mm : ± 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 1.70
Tolerance mm : ± 0.20

Rated speed rpm : 790
guide sleeve
travel mm : 6.42
Tolerance mm : ± 0.25

Rated speed rpm : 460
guide sleeve
travel mm : 3.77
Tolerance mm : ± 0.25

Rated speed rpm : 1440
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

604

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 276.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 11.40

Rated speed rpm : 1145
Tolerance 1/min : ± 5

Check
speed 1/min : ± 10

rack travel mm : 4.00
Rated speed rpm : 1260

Tolerance 1/min : ± 15
Check
speed 1/min : ± 20

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 275
rack travel mm : 6.50

Tolerance mm : ± 0.10

Rated speed rpm : 335

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 12.45
Tolerance mm : \pm 0.05

Rated speed rpm : 650
rack travel mm : 13.30
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 13.30
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 1200
rack travel mm : 13.30
Tolerance mm : \pm 0.10

Rated speed rpm : 800
Pressure hPa : -
rack travel mm : 9.40
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 800
Pressure hPa : 290
rack travel mm : 10.60
Tolerance mm : \pm 0.20

Pressure hPa : 520
rack travel mm : 12.50
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 170
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 150
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 283.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
rack travel mm : 13.30
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 295.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 152.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 12.00
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : 6.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm3/1000 strokes : + 3.0
Check tolerance
cm3/1000S. : + 6.0
Spreed
Tolerance
cm3/1000 strokes : 8.0
Check tolerance
cm3/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 746 649

Injection pump
Pump designation : PES6P120A32ORS7359
EP type number : 0 412 726 925

Governor
Governor design. : RQ275/1050PA1217
Governor no. : 0 421 801 782

Cust. part No. : CCEP5150A 66
: -225/228

Customer-spec. information

Customer : RENAULT V.I.
Motor : MIDRO62045 I-B41
Power KW : 185.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 320
Tolerance l/h : + 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

G07

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.70
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.25
Tolerance mm : + 0.75

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

*NW after s.o.d. : -1.45
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 12.50

Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 193.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -6.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 31.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1137
guide sleeve
travel mm : 6.37
Tolerance mm : + 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 1.37
Tolerance mm : + 0.10

Rated speed rpm : 1050

G08

guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 391
guide sleeve
travel mm : 4.37
Tolerance mm : + 0.10

Rated speed rpm : 490
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.10

Rated speed rpm : 1340
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 193.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 275.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1120
Tolerance 1/min : + 5

rack travel mm : -8.50
Rated speed rpm : 1235
Tolerance 1/min : + 15

rack travel mm : -12.00
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 252.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : < -5.70

Testing:

Rated speed rpm : 275
rack travel mm : -6.80
Tolerance mm : + 0.10

rack travel mm : -10.40
Rated speed rpm : 375
Tolerance 1/min : + 20

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.00
Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 500

609

Pressure hPa : 320
rack travel mm : -0.85
Tolerance mm : + 0.15

Pressure hPa : 160
rack travel mm : -1.70
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 195

Check
speed 1/min : > 80
Check
speed 1/min : < 215

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -6.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 31.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 746 650

Injection pump
Pump designation : PES6P120A320RS7344
EP type number : 0 412 726 914

Governor
Governor design. : RQ275/1050PA999-6
Governor no. : 0 421 801 785

Cust. part No. : CCEP 5151A 66-230

Customer spec. information
Customer : RENAULT V.I.
Motor : MIDR 062045 M41
Power KW : 250.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 11.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 287.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.00
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 37.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1131
guide sleeve
travel mm : 6.38
Tolerance mm : \pm 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 0.80
Tolerance mm : \pm 0.10

Rated speed rpm : 1050
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 396
guide sleeve
travel mm : 2.99
Tolerance mm : \pm 0.10

Rated speed rpm : 550
guide sleeve
travel mm : 6.00
Tolerance mm : \pm 0.10

Rated speed rpm : 1350
guide sleeve
travel mm : 11.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00
Tolerance mm : \pm 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 287.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 274.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1135
Tolerance 1/min : \pm 5

rack travel mm : -7.60
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

rack travel mm : -11.10
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 251.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $<$ -5.80

Testing:

Rated speed rpm : 275
rack travel mm : -7.00
Tolerance mm : \pm 0.10

rack travel mm : -9.50
Rated speed rpm : 365
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -3.65
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 560
rack travel mm : -1.25
Tolerance mm : \pm 0.15

Pressure hPa : 320
rack travel mm : -2.75
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1050
Del. quantity
cm³/1000 strokes : 280.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 114.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -7.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 37.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113
Combination No. : 0 402 746 994
Injection pump
Pump designation : PES6P120A320RS7344
EP type number : 0 412 726 914
Governor
Governor design. : RQV275...1000PA1161
Governor no. : 0 421 814 100

Cust. part No. : CCEP 5143A 66-231

Customer spec. information
Customer : RENAULT V.I.
Motor : MIDR 062045 E/41
Power KW : 249.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference °CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 600

Del. quantity
cm³/1000 strokes : 285.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.70
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 28.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1086
guide sleeve
travel mm : 8.09
Tolerance mm : ± 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.66

Tolerance mm : ± 0.25

Rated speed rpm : 793
guide sleeve
travel mm : 6.00
Tolerance mm : ± 0.25

Rated speed rpm : 343
guide sleeve
travel mm : 2.33
Tolerance mm : ± 0.25

Rated speed rpm : 393
guide sleeve
travel mm : 2.95
Tolerance mm : ± 0.25

Rated speed rpm : 500
guide sleeve
travel mm : 3.72
Tolerance mm : ± 0.25

Rated speed rpm : 1410
guide sleeve
travel mm : 11.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1235

Rack travel in mm : 11.70
Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600
Aneroid pressure
hPa : 1000
Del. quantity
cm³/1000 strokes : 285.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 120.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1075
Tolerance 1/min : \pm 5

rack travel mm : -8.60
Rated speed rpm : 1210
Tolerance 1/min : \pm 15

rack travel mm : -12.10
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 65.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $<$ -5.70

Testing:

Rated speed rpm : 300
rack travel mm : -7.70
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL
Rated speed rpm : 600

Rated speed rpm : 1000
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000

Rated speed rpm : 500

Pressure hPa : -
rack travel mm : -3.35
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 320
rack travel mm : -2.65
Tolerance mm : \pm 0.15

Pressure hPa : 640
rack travel mm : -0.70
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 284.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75

Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -7.70
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 28.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113
Combination No. : 0 402 746 995
Injection pump
Pump designation : PES6P120A320RS7343
EP type number : 0 412 726 915
Governor
Governor design. : RQV300...1000PA1160K
Governor no. : 0 421 815 420

Cust. part No. : CCEP 5144A 66-232

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 062356 A/41
Power kW : 280.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 2 417 413 071
Inlet press. bar : 2.5
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : + 1.5
Test lines : 1 680 750 089
Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 4.50
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 11.00
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

*NW after s.o.d. : -0.40
Tolerance : + 0.50

Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.80
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 350.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : -7.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 38.0

Tolerance
cm³/1000 strokes : + 1.5

Check tolerance
cm³/1000S. : + 5.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1103
guide sleeve
travel mm : 8.70
Tolerance mm : + 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.32

G20

Tolerance mm : + 0.25

Rated speed rpm : 823
guide sleeve
travel mm : 5.92
Tolerance mm : + 0.25

Rated speed rpm : 405
guide sleeve
travel mm : 2.43
Tolerance mm : + 0.25

Rated speed rpm : 455
guide sleeve
travel mm : 2.98
Tolerance mm : + 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.66
Tolerance mm : + 0.25

Rated speed rpm : 1440
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1300

Rack travel in mm : 11.60
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200
Del. quantity
cm³/1000 strokes : 350.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 117.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1100
Tolerance 1/min : \pm 5

rack travel mm : -8.80
Rated speed rpm : 1210
Tolerance 1/min : \pm 15

rack travel mm : -12.30
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 300
rack travel mm : -7.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200
CRT mm max. : $<$ -6.60

Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.45
Tolerance mm : \pm 0.15

Rated speed rpm : 800
rack travel mm : 0.10
Tolerance mm : \pm 0.15

Rated speed rpm : 350
rack travel mm : -1.70
Tolerance mm : \pm 0.30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1200

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : -3.90
Tolerance mm : \pm 0.30

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 320
rack travel mm : -2.80
Tolerance mm : \pm 0.15

Pressure hPa : 520
rack travel mm : -1.70
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 225

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 245

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 381.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

rack travel mm : 0.10
Tolerance mm : \pm 0.15

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 245.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : ± 0.75
Del. quantity
cm³/1000 strokes : 185.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -7.60
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000s. : ± 5.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113
Combination No. : 0 402 946 010
Injection pump
Pump designation : PES6P120A320RS8028
EP type number : 0 412 926 021
Governor
Governor design. : RQV275...1175PA1101K
Governor no. : 0 421 815 982

Cust. part No. : CCEP 5133 A 66-193

Customer spec. information
Customer : RENAULT V.I.
Motor : MIDR 060226 M51
Power KW : 158.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.15
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 12.30
Difference °CS : 2.00

CRT ZERO POSITION

Rack travel in mm : 13.70
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1175

Del. quantity
cm³/1000 strokes : 268.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.30
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 42.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1230
guide sleeve
travel mm : 8.95
Tolerance mm : + 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 1.01

G24

Tolerance mm : + 0.10

Rated speed rpm : 877
guide sleeve
travel mm : 6.51
Tolerance mm : + 0.20

Rated speed rpm : 389
guide sleeve
travel mm : 2.39
Tolerance mm : + 0.20

Rated speed rpm : 439
guide sleeve
travel mm : 3.01
Tolerance mm : + 0.20

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : + 0.20

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1430

Rack travel in mm : 11.20
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 268.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 295.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1250
Tolerance 1/min : \pm 15

rack travel mm : -9.70
Rated speed rpm : 1430
Tolerance 1/min : \pm 5

rack travel mm : -13.20
Tolerance mm : \pm 0.55
Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 245.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $<$ -6.70

Testing:

Rated speed rpm : 275
rack travel mm : -7.30
Tolerance mm : \pm 0.10

Rated speed rpm : 400

TORQUE CONTROL

Rated speed rpm : 1175

Rated speed rpm : 650
rack travel mm : -1.55
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -2.80
Tolerance mm : \pm 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

625

Rated speed rpm : 1175
Pressure hPa : 1600

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -5.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1175

Pressure hPa : 320
rack travel mm : -4.70
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : -2.95
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 260.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : -2.80
Tolerance mm : \pm 0.25

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 148.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000s. : ± 14.0

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : -7.30
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 42.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113
Combination No. : 0 402 946 011
Injection pump
Pump designation : PES6P120A320RS8028
EP type number : 0 412 926 021
Governor
Governor design. : RGV275...1250PA1125K
Governor no. : 0 421 815 981

Cust. part No. : CCEP 5140A 66-205

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.02.26L51
Power KW : 132.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

betw. rack trav.
mm : 21.00
and maximum rack
travel : 10.00
Difference ° CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 12.60
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 170.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000s. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 325

Rack travel in mm : -6.60
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 41.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000s. : \pm 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1355
guide sleeve
travel mm : 10.10
Tolerance mm : \pm 0.10

Rated speed rpm : 275
guide sleeve
travel mm : 1.00

Tolerance mm : \pm 0.15

Rated speed rpm : 929
guide sleeve
travel mm : 6.80
Tolerance mm : \pm 0.20

Rated speed rpm : 390
guide sleeve
travel mm : 2.39
Tolerance mm : \pm 0.20

Rated speed rpm : 440
guide sleeve
travel mm : 3.01
Tolerance mm : \pm 0.20

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.20

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1430

Rack travel in mm : 10.90
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 170.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00
Rated speed rpm : 1330
Tolerance 1/min : \pm 15

rack travel mm : -8.60
Rated speed rpm : 1470
Tolerance 1/min : \pm 5

rack travel mm : -12.10
Tolerance mm : \pm 0.55
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 244.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -6.60
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -5.20

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 650
rack travel mm : -1.10
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -1.70
Tolerance mm : \pm 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250

H01

Pressure hPa : 1600
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -4.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 200
rack travel mm : -3.70
Tolerance mm : \pm 0.20

Pressure hPa : 360
rack travel mm : -2.60
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1600
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : -1.70
Tolerance mm : \pm 0.25

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 116.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : ± 10.0
Check tolerance
cm³/1000S. : ± 14.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : -6.60
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 946 012

Injection pump
Pump designation : PES6P120A32ORS8031
EP type number : 0 412 926 022

Governor
Governor design. : RQV300...1000PA1181K
Governor no. : 0 421 815 975

Cust. part No. : CCEP 5145A 66-234

Customer-spec. information
Customer : RENAULT V.I.
Motor : MIDR 063540 P 41
Power KW : 300.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.4

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.65
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 11.00
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

°NW after s.o.d. : -0.17
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Barrel no. : 1

Beginning of delivery differende
betw. rack trav.
mm : 21.00
and maximum rack
travel : 19.50
Difference °CS : 2.50

CRT ZERO POSITION

Rack travel in mm : 13.30
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1000

Del. quantity
cm³/1000 strokes : 360.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -7.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 38.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1082
guide sleeve
travel mm : 9.30
Tolerance mm : \pm 0.25

Rated speed rpm : 300
guide sleeve
travel mm : 1.47
Tolerance mm : \pm 0.25

Rated speed rpm : 797
guide sleeve
travel mm : 6.08
Tolerance mm : \pm 0.25

Rated speed rpm : 383
guide sleeve
travel mm : 2.42
Tolerance mm : \pm 0.25

Rated speed rpm : 433
guide sleeve
travel mm : 2.89
Tolerance mm : \pm 0.25

Rated speed rpm : 530
guide sleeve
travel mm : 3.71
Tolerance mm : \pm 0.25

Rated speed rpm : 1350
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1220

Rack travel in mm : 12.00
Tolerance mm : \pm 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1400

Del. quantity
cm³/1000 strokes : 360.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 295.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1110
Tolerance 1/min : \pm 5

rack travel mm : -9.30
Rated speed rpm : 1210
Tolerance 1/min : \pm 15

rack travel mm : -12.80
Tolerance mm : \pm 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 253.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 325
rack travel mm : -7.80
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -6.00

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600
rack travel mm : -0.55
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : -0.35
Tolerance mm : \pm 0.20

Rated speed rpm : 350
rack travel mm : -1.80
Tolerance mm : \pm 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1000
Pressure hPa : 1400
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : -5.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 280
rack travel mm : -4.50
Tolerance mm : \pm 0.20

Pressure hPa : 560
rack travel mm : -3.00
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1400
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 390.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

rack travel mm : -0.35
Tolerance mm : \pm 0.20

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 201.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : ± 0.75
Del. quantity
cm³/1000 strokes : 190.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : -7.80
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 38.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 09.12.97

Test oil : ISO 4113

Combination No. : 0 402 946 013

Injection pump

Pump designation : PES6P120A320RS8028

EP type number : 0 412 926 021

Governor

Governor design. : RQV275...1250PA1189K

Governor no. : 0 421 815 974

Cust. part No. : CCEP 5146A 66-220

Customer spec. information

Customer : RENAULT V.I.

Motor : MIDR 06.02.26Y41

Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Test nozzle holder assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 11.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.25

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.

mm : 21.00

and maximum rack

travel : 11.00

Difference °CS : 2.25

CRT ZERO POSITION

Rack travel in mm : 14.40
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 276.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.40
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 47.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1332
guide sleeve
travel mm : 10.07
Tolerance mm : \pm 0.25

Rated speed rpm : 275
guide sleeve
travel mm : 1.10
Tolerance mm : \pm 0.25

Rated speed rpm : 912
guide sleeve
travel mm : 6.79
Tolerance mm : \pm 0.25

Rated speed rpm : 412
guide sleeve
travel mm : 2.53
Tolerance mm : \pm 0.25

Rated speed rpm : 462
guide sleeve
travel mm : 3.16
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.97
Tolerance mm : \pm 0.25

Rated speed rpm : 1630
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1420

Rack travel in mm : 13.50
Tolerance mm : \pm 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 276.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 303.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : -1.00
Rated speed rpm : 1325
Tolerance 1/min : \pm 15

rack travel mm : -10.40
Rated speed rpm : 1480
Tolerance 1/min : \pm 5

rack travel mm : -13.90
Tolerance mm : \pm 0.50
Rated speed rpm : 1600

LOW IDLE

control lever
position degree : 250.0
tolerance degree : \pm 4.0

Testing:

Rated speed rpm : 275
rack travel mm : -7.40
Tolerance mm : \pm 0.10

Rated speed rpm : 200

CRT mm max. : $<$ -6.60

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 800
rack travel mm : -0.75
Tolerance mm : \pm 0.10

Rated speed rpm : 350
rack travel mm : -4.10
Tolerance mm : \pm 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
Pressure hPa : 1600
Tolerance mm : \pm 0.10

Rated speed rpm : 1000
Pressure hPa : -
rack travel mm : -4.40
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 240
rack travel mm : -3.60
Tolerance mm : \pm 0.20

Pressure hPa : 480
rack travel mm : -1.60
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 175
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 155
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 287.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : -4.10
Tolerance mm : \pm 0.25

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 181.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000S. : + 19.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -7.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 47.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113

Combination No. : 0 402 946 027

Injection pump
Pump designation : PES6P120A320RS8047
EP type number : 0 412 926 029

Governor
Governor design. : RQV275...1250PA1312K
Governor no. : 0 421 815 966

Cust. part No. : CCEP 5160A 66-244

Customer spec. information
Customer : RENAULT V.I.
Motor : MIDR 06.02.26L71
Power kW : 141.7

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Overflow quantity
min. l/h : 145
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.25
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.
mm : 21.00
and maximum rack
travel : 11.00
Difference ° CS : 3.25

CRT ZERO POSITION

Rack travel in mm : 12.10
Tolerance mm : \pm 0.05

BASIC SETTING

Rated speed rpm : 1250

Del. quantity
cm³/1000 strokes : 183.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : -7.20
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 39.0

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance

cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1340
guide sleeve
travel mm : 9.96
Tolerance mm : \pm 0.15

H12

Rated speed rpm : 325
guide sleeve
travel mm : 1.52
Tolerance mm : \pm 0.20

Rated speed rpm : 923
guide sleeve
travel mm : 6.76
Tolerance mm : \pm 0.25

Rated speed rpm : 550
guide sleeve
travel mm : 3.92
Tolerance mm : \pm 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : \pm 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1430

Rack travel in mm : 11.10
Tolerance mm : \pm 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 183.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed
Tolerance

cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 296.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : -1.00

Rated speed rpm : 1330
 Tolerance 1/min : + 15

 rack travel mm : -8.10
 Rated speed rpm : 1470
 Tolerance 1/min : + 5

 rack travel mm : -11.60
 tolerance mm : + 0.55
 Rated speed rpm : 1600

LOW IDLE

control lever
 position degree : 241.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

 CRT mm min. : < -5.80

Testing:

Rated speed rpm : 325
 rack travel mm : -7.20
 Tolerance mm : + 0.10

 Rated speed rpm : 325
 rack travel mm : > 5.80

TORQUE CONTROL

Rated speed rpm : 1250

 Rated speed rpm : 650
 rack travel mm : -2.10
 Tolerance mm : + 0.10

 Rated speed rpm : 350
 rack travel mm : -3.25
 Tolerance mm : + 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1250
 Pressure hPa : 1600
 Tolerance mm : + 0.10

 Rated speed rpm : 500

H13

Pressure hPa : -
 rack travel mm : -4.70
 Tolerance mm : + 0.20

MEASUREMENT

Rated speed rpm : 1250

 Pressure hPa : 240
 rack travel mm : -3.40
 Tolerance mm : + 0.20

 Pressure hPa : 520
 rack travel mm : -1.20
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
 Rated speed rpm : < 240

 Check
 speed 1/min : > 155
 Check
 speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1600
 Rated speed rpm : 650
 Del. quantity
 cm³/1000 strokes : 172.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000s. : + 6.0

rack travel mm : -3.25
 Tolerance mm : + 0.25

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 120.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 113.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 14.0

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : -7.20
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 39.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.12.97
Test oil : ISO 4113
Combination No. : 0 402 946 028
Injection pump
Pump designation : PES6P120A320RS8047
EP type number : 0 412 926 029
Governor
Governor design. : RQV275...1175PA1312
: -1K
Governor no. : 0 421 815 965
Cust. part No. : CCEP 5161 A 66-245

Customer spec. information

Customer : RENAULT V.I.
Motor : MIDR 060226 M71
Power KW : 158.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 2 417 413 078
Inlet press. bar : 2.5
Tolerance bar : ± 0.1
Overflow quantity min. l/h : 140
Tolerance l/h : ± 20.0
Test nozzle holder assembly : 1 688 901 105
Opening pressure bar : 208.5
Tolerance bar : ± 1.5

H15

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.00
Tolerance mm : ± 0.05
Check tolerance mm : ± 0.10

Rack travel in mm : 11.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Start of delivery mark

*NW after s.o.d. : -0.25
Tolerance : ± 0.50
Check tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav. mm : 21.00
and maximum rack travel : 11.00

Difference * CS : 3.25

CRT ZERO POSITION

Rack travel in mm : 13.40
Tolerance mm : + 0.05

BASIC SETTING

Rated speed rpm : 1175

Del. quantity
cm³/1000 strokes : 273.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : -7.10
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 45.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1270
guide sleeve
travel mm : 9.30

Tolerance mm : + 0.15

Rated speed rpm : 275
guide sleeve
travel mm : 0.98
Tolerance mm : + 0.20

Rated speed rpm : 893
guide sleeve
travel mm : 6.60
Tolerance mm : + 0.25

Rated speed rpm : 560
guide sleeve
travel mm : 4.01
Tolerance mm : + 0.25

Rated speed rpm : 1650
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1420

Rack travel in mm : 12.20
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 1600

Del. quantity
cm³/1000 strokes : 273.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 294.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : -1.00
 Rated speed rpm : 1255
 Tolerance 1/min : + 15

rack travel mm : -9.40
 Rated speed rpm : 1431
 Tolerance 1/min : + 5

rack travel mm : -12.90
 Tolerance mm : + 0.50
 Rated speed rpm : 1550

LOW IDLE

control lever
 position degree : 243.0
 tolerance degree : + 4.0

Testing:

Rated speed rpm : 275
 rack travel mm : -7.10
 Tolerance mm : + 0.10

Rated speed rpm : 200
 CRT mm max. : > -6.40
 Rated speed rpm : 390

TORQUE CONTROL

Rated speed rpm : 1175

Rated speed rpm : 650
 rack travel mm : -1.75
 Tolerance mm : + 0.10

Rated speed rpm : 350
 rack travel mm : -3.00
 Tolerance mm : + 0.25

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1175
 Pressure hPa : 1600

Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : -5.50
 Tolerance mm : + 0.20

H17

MEASUREMENT

Rated speed rpm : 1175

Pressure hPa : 320
 rack travel mm : -4.00
 Tolerance mm : + 0.20

Pressure hPa : 560
 rack travel mm : -2.40
 Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 175
 Rated speed rpm : < 240

Check
 speed 1/min : > 155
 Check
 speed 1/min : < 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 1600
 Rated speed rpm : 650
 Del. quantity
 cm³/1000 strokes : 260.0
 Tolerance
 cm³/1000 strokes : + 3.0
 Check tolerance
 cm³/1000S. : + 6.0

rack travel mm : -3.00
 Tolerance mm : + 0.25

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 150.0
 Tolerance
 cm³/1000 strokes : + 1.0
 Check tolerance
 cm³/1000S. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 Del. quantity
 cm³/1000 strokes : 87.0

Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 275
Rack travel in mm : -7.10
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 45.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 04.12.97
Test oil : ISO 4113
Combination No. : 0 403 436 109
Injection pump
Pump designation : PES6MW100/120RS1143
EP type number : 0 413 406 137
Governor
Governor design. : RQV300...1050MW82-4
Governor no. : 0 420 083 168

Cust. part No. : 3915581

Customer-spec. information
Customer : CUMMINS
Motor : 6 CTA-830
Power KW : 175.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 1 688 901 017

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.10
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 149.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 7.80

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1100
guide sleeve
travel mm : 8.00
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.30
Tolerance mm : + 0.20

Rated speed rpm : 550
guide sleeve
travel mm : 3.30
Tolerance mm : + 0.30

Rated speed rpm : 1210
guide sleeve
travel mm : 9.20
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 900
Del. quantity
cm³/1000 strokes : 149.0

H2O

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 11.60
Rated speed rpm : 1095
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1200
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1300

LOW IDLE

control lever
position degree : 66.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.30

Testing:

Rated speed rpm : 300
rack travel mm : 7.80
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1050
rack travel mm : 12.65
Tolerance mm : + 0.05

Rated speed rpm : 700

rack travel mm : 12.65
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 12.65
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.50
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 450
rack travel mm : 12.10
Tolerance mm : \pm 0.20

Pressure hPa : 225
rack travel mm : 10.95
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 220

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 93.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 7.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.01.92
Test oil : ISO 4113
Combination No. : 0 403 444 132
Injection pump
Pump designation : PES4MM100/320RS1222
EP type number : 0 413 404 117
Governor
Governor design. : RQV300...1100MM39-5
Governor no. : 0 420 083 068

Cust. part No. :

Customer spec. information
Customer : VME
Motor : TD45B
Power KW : 88.5

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 419 992 198
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 174.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014
Outside diameter : 6.0

H22

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1-3-4-2
Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 13.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 6.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1150
guide sleeve
travel mm : 8.40
Tolerance mm : \pm 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.20
Tolerance mm : \pm 0.20

Rated speed rpm : 600
guide sleeve
travel mm : 3.00
Tolerance mm : \pm 0.30

Rated speed rpm : 1225
guide sleeve
travel mm : 9.60
Tolerance mm : \pm 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1130

Rack travel in mm : 16.50
Tolerance mm : \pm 1.30

H23

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 118.0
Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 104.0
tolerance degree : \pm 4.0

RATED SPEED

rack travel mm : 12.00
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1240
Tolerance 1/min : \pm 15

rack travel mm : 0.50
Tolerance mm : \pm 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 8.00

Testing:

Rated speed rpm : 300
rack travel mm : 6.50

Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.05
Tolerance mm : + 0.05

Rated speed rpm : 1000
rack travel mm : 13.05
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 118.5
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000s. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.5
Check tolerance
cm³/1000s. : 7.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : + 1.00
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000s. : + 8.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 6.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 31.07.89
Test oil : ISO 4113
Combination No. : 0 403 446 198
Injection pump
Pump designation : PES6MM100/32ORS1160
EP type number : 0 413 406 147

Governor
Governor design. : RQV350...1200MM46
: -16
Governor no. : 0 420 083 147

Cust. part No. :

Customer-spec. information
Customer : NAVISTAR
Motor : DTA-466
Power KW : 176.4

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 037

Inlet press. bar : 2.8

Test nozzle holder
assembly : 1 688 901 016

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

H25

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 800

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 126.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance	
cm ³ /1000 strokes :	3.5
Check tolerance	
cm ³ /1000s. :	6.0

Rated speed rpm : 350

Rack travel in mm : 6.55
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 18.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000s. : + 4.5

Spread
Tolerance

cm³/1000 strokes : 3.5
Check tolerance

cm³/1000s. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1350
guide sleeve
travel mm : 3.40
Tolerance mm : + 0.10

Rated speed rpm : 350
guide sleeve
travel mm : 1.50
Tolerance mm : + 0.20

Rated speed rpm : 550
guide sleeve
travel mm : 3.40
Tolerance mm : + 0.30

Rated speed rpm : 1460
guide sleeve
travel mm : 9.30
Tolerance mm : + 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 800
Aneroid pressure
hPa : 800
Del. quantity
cm³/1000 strokes : 126.0

Tolerance	
cm ³ /1000 strokes : +	1.0
Check tolerance	
cm ³ /1000s. : +	3.0

Spread
Tolerance

cm³/1000 strokes : 3.5
Check tolerance

cm³/1000s. : 6.0

CONTROL LEVER

control lever
position degree : 46.5
tolerance degree : + 2.5

RATED SPEED
rack travel mm : 11.80
Rated speed rpm : 1270
Tolerance 1/min : + 10

rack travel mm : 4.00
Rated speed rpm : 1390
Tolerance 1/min : + 5

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 16.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 9.00

Testing:

Rated speed rpm : 350
rack travel mm : 6.55
Tolerance mm : + 0.05

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 800
rack travel mm : 12.85
Tolerance mm : + 0.05

Rated speed rpm : 1200
rack travel mm : 12.85
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 800
Pressure hPa : 800
rack travel mm : 12.85
Tolerance mm : \pm 0.05

Rated speed rpm : 800
Pressure hPa : -
rack travel mm : 10.15
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 800
Pressure hPa : 480
rack travel mm : 12.05
Tolerance mm : \pm 0.15

Pressure hPa : 180
rack travel mm : 10.45
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 180

Check
speed 1/min : > 80
Check
speed 1/min : < 240

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed

Tolerance
cm³/1000 strokes : 6.5
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure

hPa : -
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 160.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 23.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.55
Tolerance mm : \pm 0.05
Del. quantity
cm³/1000 strokes : 18.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 18.02.92
Test oil : ISO 4113

Combination No. : 0 403 446 220

Injection pump
Pump designation : PES6MW100/320RS1171
EP type number : 0 413 406 156

Governor
Governor design. : RGV300...1400MW80-3
Governor no. : 0 420 083 183

Cust. part No. :

Customer-spec. information
Customer : RVI
Motor : MIDR 06.02.12D
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 033

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 174.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

H28

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

CRT ZERO POSITION

Rack travel in mm : 11.15
Tolerance mm : ± 0.05

BASIC SETTING

Rated speed rpm : 1400

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 94.0

Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 3.5
Check tolerance	
cm ³ /1000S.	: 6.0
Rated speed rpm : 300	
Rack travel in mm : -5.80	
Tolerance mm : + 0.20	
Del. quantity	
cm ³ /1000 strokes	: 17.0
Tolerance	
cm ³ /1000 strokes	: + 2.0
Check tolerance	
cm ³ /1000S.	: + 4.5
Spreed	
Tolerance	
cm ³ /1000 strokes	: 3.5
Check tolerance	
cm ³ /1000S.	: 5.5

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1450
guide sleeve	
travel mm	: 8.60
Tolerance mm	: + 0.10
Rated speed rpm : 300	
guide sleeve	
travel mm	: 1.40
Tolerance mm	: + 0.20
Rated speed rpm : 500	
guide sleeve	
travel mm	: 3.10
Tolerance mm	: + 0.30
Rated speed rpm : 1590	
guide sleeve	
travel mm	: 9.70
Tolerance mm	: + 0.20

J01

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1400
Aneroid pressure	
hPa	: 750
Del. quantity	
cm ³ /1000 strokes	: 94.0
Tolerance	
cm ³ /1000 strokes	: + 1.0
Check tolerance	
cm ³ /1000S.	: + 3.0
Spreed	
Tolerance	
cm ³ /1000 strokes	: 3.5
Check tolerance	
cm ³ /1000S.	: 6.0

CONTROL LEVER

control lever	
position degree	: 122.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: -1.00
Rated speed rpm	: 1475
Tolerance 1/min	: + 5

rack travel mm	: -7.10
Rated speed rpm	: 1605
Tolerance 1/min	: + 15

rack travel mm	: -10.60
Tolerance mm	: + 0.50
Rated speed rpm	: 1700

LOW IDLE

control lever	
position degree	: 68.0
tolerance degree	: + 4.0

Setting point w/out bumper spring

Rated speed rpm	: 200
CRT mm min.	: > -4.10

Testing:

Rated speed rpm	: 300
rack travel mm	: -5.80

Tolerance mm : \pm 0.20

TORQUE CONTROL

Rated speed rpm : 1400
Tolerance mm : \pm 0.05

Rated speed rpm : 900
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 750

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : -2.60
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 100
rack travel mm : -2.15
Tolerance mm : \pm 0.15

Pressure hPa : 200
rack travel mm : -0.65
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 230

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 750
Rated speed rpm : 900
Del. quantity
cm³/1000 strokes : 89.0
Tolerance
cm³/1000 strokes : \pm 1.5

Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 41.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 105.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : -5.80
Tolerance mm : \pm 0.20
Del. quantity
cm³/1000 strokes : 17.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.01.90
Test oil : ISO 4113
Combination No. : 0 403 474 009
Injection pump
Pump designation : PES4MW100/720RS1187
EP type number : 0 413 404 108
Governor
Governor design. : RSV300...1250MW5A337
Governor no. : 0 420 085 128

Cust. part No. :

Customer spec. information
Customer : KHD
Motor : BF 4L 913C
Power KW : 92.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

J03

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.00
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 12.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 119.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 7.60

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 4.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 119.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.90

Rated speed rpm : 1295

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1425

Tolerance 1/min : ± 15

rack travel mm : 1.00

Tolerance mm : ± 0.70

Rated speed rpm : 1550

rack travel mm : 4.00

Rated speed rpm : 1475

Tolerance 1/min : ± 15

LOW IDLE

control lever
position degree : 77.0
tolerance degree : ± 4.0

Testing:

Rated speed rpm : 300

rack travel mm : 7.60

Tolerance mm : ± 0.10

TORQUE CONTROL

Rated speed rpm : 1250

rack travel mm : 12.95

Tolerance mm : ± 0.05

Rated speed rpm : 800

rack travel mm : 13.25

Tolerance mm : ± 0.05

Rated speed rpm : 900

rack travel mm : 13.20

Tolerance mm : ± 0.10

Rated speed rpm : 1000

rack travel mm : 13.00

Tolerance mm : ± 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.85
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 470
rack travel mm : 12.45
Tolerance mm : \pm 0.15

Pressure hPa : 320
rack travel mm : 11.45
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 13.20
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 67.0

J05

Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 7.60
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.05.91
Test oil : ISO 4113
Combination No. : 0 403 474 012
Injection pump
Pump designation : PES4MW100/720RS1207
EP type number : 0 413 404 113
Governor
Governor design. : RSV350...1000MWA333
: -1
Governor no. : 0 420 085 153

Cust. part No. :

Customer-spec. information
Customer : LIEBHERR
Motor : D 914 T
Power kW : 110.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

J06

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.35
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 134.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance cm ³ /1000S.	:	6.0
--	---	-----

Rated speed rpm	:	350
Rack travel in mm	:	6.00
Tolerance mm	:	+ 0.10
Del. quantity cm ³ /1000 strokes	:	16.0
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000S.	:	+ 4.5
Spread		
Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	5.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	:	- 3
Rated speed rpm	:	800
Rack travel in mm	:	0.65
Tolerance mm	:	+ 0.35
governor spring pre-tension		
click setting x	:	5.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1000
Aneroid pressure hPa	:	-
Del. quantity cm ³ /1000 strokes	:	134.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 3.0
Spread		
Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	6.0

CONTROL LEVER

control lever position degree	:	100.0
tolerance degree	:	+ 4.0

RATED SPEED		
rack travel mm	:	10.50
Rated speed rpm	:	1045
Tolerance 1/min	:	+ 5

rack travel mm	:	4.00
Rated speed rpm	:	1125
Tolerance 1/min	:	+ 15

rack travel mm	:	1.00
Tolerance mm	:	+ 0.70
Rated speed rpm	:	1275

LOW IDLE

control lever position degree	:	76.0
tolerance degree	:	+ 4.0

Setting point w/out bumper spring

Rated speed rpm	:	100
CRT mm min.	:	> 19.00

Testing:

Rated speed rpm	:	350
rack travel mm	:	6.00
Tolerance mm	:	+ 0.10

rack travel mm	:	2.00
Rated speed rpm	:	420
Tolerance 1/min	:	+ 30

TORQUE CONTROL

Rated speed rpm	:	1000
rack travel mm	:	11.55
Tolerance mm	:	+ 0.05

Rated speed rpm	:	700
rack travel mm	:	11.55
Tolerance mm	:	+ 0.05

Rated speed rpm	:	500
rack travel mm	:	11.55
Tolerance mm	:	+ 0.05

Rated speed rpm : 400
rack travel mm : 13.05
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 133.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 11.55
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 16.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed

J08

Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 25.10.85
Test oil : ISO 4113
Combination No. : 0 403 476 016
Injection pump
Pump designation : PES6MW100/320RS1111
EP type number : 0 413 406 107
Governor
Governor design. : RSV325...1400MW2A314
Governor no. : 0 420 085 022

Cust. part No. :

Customer spec. information
Customer : VOLVO
Motor : TAMD 60C
Power KW : 184.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 174.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 122.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 325

Rack travel in mm : 5.15
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 11.5

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 800

Del. quantity
cm³/1000 strokes : 122.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 112.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.00
Rated speed rpm : 1445
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1520
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 74.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 5.15
Tolerance mm : + 0.05

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.05
Tolerance mm : + 0.05

Rated speed rpm : 1400
rack travel mm : 13.05
Tolerance mm : + 0.05

Rated speed rpm : 350
rack travel mm : 13.55
Tolerance mm : + 0.05

Rated speed rpm : 500
rack travel mm : 13.05
Tolerance mm : + 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 800
rack travel mm : 13.05
Tolerance mm : ± 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.55
Tolerance mm : ± 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 530
rack travel mm : 12.85
Tolerance mm : ± 0.15

Pressure hPa : 300
rack travel mm : 10.75
Tolerance mm : ± 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 800
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 122.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 13.55
Tolerance mm : ± 0.05

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 84.0

Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : ± 1.00
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 5.15
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 11.5
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 24.01.92
Test oil : ISO 4113
Combination No. : 0 403 476 042
Injection pump
Pump designation : PES6MM100/320RS1132
EP type number : 0 413 406 124
Governor
Governor design. : RSV325...1250MW2A308
: -6
Governor no. : 0 420 085 186
Cust. part No. :

Customer spec. information
Customer : VOLVO-PENTA
Motor : TD 61 APP
Power KW : 147.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 457 413 010
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : + 1.5
Test lines : 1 680 750 014
Outside diameter : 2.0

J12

x inside diameter : 6.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : + 1.0
Prestroke mm : 2.95
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 10.50
Tolerance mm : + 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

BASIC SETTING

Rated speed rpm : 1000
Rack travel in mm : 10.85
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 86.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 325

Rack travel in mm : 6.15

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

governor spring
pre-tension
click setting x : 3.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 86.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance

cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 9.80
Rated speed rpm : 1295
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1355
Tolerance 1/min : ± 15

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 76.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 6.15
Tolerance mm : ± 0.05

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 10.85
Tolerance mm : ± 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000s. : \pm 13.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.15
Tolerance mm : \pm 0.05
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000s. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.06.89
Test oil : ISO 4113
Combination No. : 0 403 476 060
Injection pump
Pump designation : PES6MW100/720RS1161.
EP type number : 0 413 406 148
Governor
Governor design. : RSV325...1150MW5A327
Governor no. : 0 420 085 084

Cust. part No. :

Customer spec. information
Customer : KHD
Motor : BF6L913C
Power KW : 134.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.50
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-30-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.85
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 124.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 325

Rack travel in mm : 4.75
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 12.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : ± 0.35

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure

hPa : 1000
Del. quantity

cm³/1000 strokes : 124.0
Tolerance

cm³/1000 strokes : ± 1.0
Check tolerance

cm³/1000S. : ± 3.0
Spread

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 106.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.80
Rated speed rpm : 1205
Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1260
Tolerance 1/min : ± 15

rack travel mm : 1.00
Tolerance mm : ± 0.70
Rated speed rpm : 1440

LOW IDLE

control lever
position degree : 71.0
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.75
Tolerance mm : ± 0.05

rack travel mm : 2.00
Rated speed rpm : 485
Tolerance 1/min : ± 30

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 12.85
Tolerance mm : ± 0.05

Rated speed rpm : 800
rack travel mm : 13.25
Tolerance mm : ± 0.05

Rated speed rpm : 900
rack travel mm : 13.10
Tolerance mm : ± 0.10

Rated speed rpm : 1000
rack travel mm : 12.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.25
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.55
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 500
rack travel mm : 11.65
Tolerance mm : \pm 0.05

Pressure hPa : 650
rack travel mm : 12.45
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 127.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 13.10
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 75.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.75
Tolerance mm : \pm 0.05
Del. quantity
cm³/1000 strokes : 12.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 26.06.92
Test oil : ISO 4113

Combination No. : 0 403 476 118

Injection pump
Pump designation : PES6MW100/720RS1217.
: -1
EP type number : 0 413 406 214

Governor
Governor design. : RSV325...1200MWOA349
Governor no. : 0 420 085 194

Cust. part No. :

Customer-spec. information
Customer : MWM
Motor : TD 226 B 6
Power KW : 118.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holde
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1175

Rack travel in mm : 9.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 97.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 325

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 10.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 97.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 94.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 8.20
Rated speed rpm : 1225
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1255
Tolerance 1/min : + 15

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1280
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 69.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 6.00
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1175
rack travel mm : 9.25
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 10.15
Tolerance mm : + 0.05

Rated speed rpm : 1025
rack travel mm : 9.65
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.45
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : 270
rack travel mm : 9.15
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 750
rack travel mm : 10.15
Tolerance mm : \pm 0.05

Pressure hPa : 350
rack travel mm : 9.65
Tolerance mm : \pm 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 750
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 106.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 9.65
Tolerance mm : \pm 0.15

Aneroid pressure
hPa : -

J20

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 63.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 20.05.92
Test oil : ISO 4113
Combination No. : 0 403 476 119
Injection pump
Pump designation : PES6MW100/72ORS1217
: -1
EP type number : 0 413 406 214
Governor
Governor design. : RSV325...1200MWA349
: -1
Governor no. : 0 420 085 195
Cust. part No. :

Customer spec. information
Customer : KHD
Motor : TD 226 B 6
Power kW : 136.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 014

Outside diameter : 6.0
x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 4.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1175
Rack travel in mm : 10.05
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 114.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 325

Rack travel in mm : 6.00

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 10.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.65
Tolerance mm : + 0.35

governor spring
pre-tension
click setting x : 3.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1175
Aneroid pressure
hPa : 750

Del. quantity
cm³/1000 strokes : 114.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.00
Rated speed rpm : 1225
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1265
Tolerance 1/min : + 15

rack travel mm : 1.00
Tolerance mm : + 0.70
Rated speed rpm : 1350

rack travel mm : 4.00
Rated speed rpm : 1280
Tolerance 1/min : + 15

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.00

Testing:

Rated speed rpm : 325
rack travel mm : 6.00
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1175
rack travel mm : 10.05
Tolerance mm : + 0.05

Rated speed rpm : 750
rack travel mm : 10.90
Tolerance mm : + 0.10

Rated speed rpm : 1025
rack travel mm : 10.45
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 750
rack travel mm : 10.90
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.45
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 450
rack travel mm : 10.15
Tolerance mm : \pm 0.15

Pressure hPa : 270
rack travel mm : 9.15
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 750
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 10.45
Tolerance mm : \pm 0.15

Aneroid pressure
hPa : -

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 63.5
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.00
Tolerance mm : \pm 1.00
Del. quantity
cm³/1000 strokes : 100.0
Tolerance
cm³/1000 strokes : \pm 10.0
Check tolerance
cm³/1000S. : \pm 13.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 6.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 10.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 11.03.88

Test oil : ISO 4113

Combination No. : 0 403 546 011

Injection pump

Pump designation : PE6MW100/720RS1157

EP type number : 0 413 506 103

Governor

Governer design. : RQV250...1200MW93-1

Governer no. : 0 420 083 137

Cust. part No. :

Customer spec. information

Customer : STEYR

Motor : WD 612.65

Power KW : 154.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holde
assembly

: 0 681 343 009

Opening pressure
bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 3.05

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.25

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 125.5

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 250

Rack travel in mm : 6.10

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1230
guide sleeve
travel mm : 8.40
Tolerance mm : + 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.00
Tolerance mm : + 0.20

Rated speed rpm : 700
guide sleeve
travel mm : 4.30
Tolerance mm : + 0.30

Rated speed rpm : 1340
guide sleeve
travel mm : 10.20
Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1230

Rack travel in mm : 16.50

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure
hPa : 700

Del. quantity
cm³/1000 strokes : 125.5

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.20
Rated speed rpm : 1245
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1320
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 65.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 7.90

Testing:

Rated speed rpm : 250

rack travel mm : 6.10
Tolerance mm : + 0.10
Rated speed rpm : 355

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 13.25
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 13.25
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.25
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.35
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 490
rack travel mm : 12.85
Tolerance mm : + 0.15

Pressure hPa : 330
rack travel mm : 11.85
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 80
Rated speed rpm : < 190

Check speed 1/min : > 100
Check speed 1/min : < 210

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure hPa : 700
Rated speed rpm : 700
Del. quantity cm³/1000 strokes : 124.5
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 4.0
Spreed Tolerance cm³/1000 strokes : 5.0
Check tolerance cm³/1000S. : 7.0

Aneroid pressure hPa : -
Rated speed rpm : 500
Del. quantity cm³/1000 strokes : 81.0
Tolerance cm³/1000 strokes : + 1.0
Check tolerance cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity cm³/1000 strokes : 135.0
Tolerance cm³/1000 strokes : + 5.0
Check tolerance cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 6.10
Tolerance mm : + 0.10
Del. quantity cm³/1000 strokes : 13.0
Tolerance cm³/1000 strokes : + 2.0
Check tolerance cm³/1000S. : + 4.0
Spreed Tolerance cm³/1000 strokes : 3.5
Check tolerance cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 19.12.91
Test oil : ISO 4113
Combination No. : 0 403 546 013
Injection pump
Pump designation : PE6MW100/720RS1157
EP type number : 0 413 506 103

Governor
Governor design. : RQ250/1200MW94
Governor no. : 0 420 082 027

Cust. part No. :

Customer spec. information
Customer : STEYR
Motor : WD 612.63
Power KW : 130.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rack travel in mm : 11.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 110.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance cm ³ /1000S.	:	6.0
--	---	-----

Rated speed rpm	:	250
Rack travel in mm	:	6.10
Tolerance mm	:	+ 0.10
Del. quantity cm ³ /1000 strokes	:	14.0
Tolerance cm ³ /1000 strokes	:	+ 2.0
Check tolerance cm ³ /1000S.	:	+ 4.5
Speed Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1250
guide sleeve travel mm	:	6.30
Tolerance mm	:	+ 0.10
Rated speed rpm	:	250
guide sleeve travel mm	:	1.70
Tolerance mm	:	+ 0.20
Rated speed rpm	:	375
guide sleeve travel mm	:	4.30
Tolerance mm	:	+ 0.30

Rated speed rpm	:	1320
guide sleeve travel mm	:	9.10
Tolerance mm	:	+ 0.20

GUIDE SLEEVE POSITION

control lever position degree	:	109
Rated speed rpm	:	600
Rack travel in mm	:	20.00
Tolerance mm	:	+ 0.80

K01

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1200
Aneroid pressure hPa	:	700
Del. quantity cm ³ /1000 strokes	:	110.0
Tolerance cm ³ /1000 strokes	:	+ 1.0
Check tolerance cm ³ /1000S.	:	+ 3.0
Speed Tolerance cm ³ /1000 strokes	:	3.5
Check tolerance cm ³ /1000S.	:	6.0

CONTROL LEVER

control lever position degree	:	100.0
tolerance degree	:	+ 4.0

RATED SPEED

rack travel mm	:	10.90
Rated speed rpm	:	1245
Tolerance 1/min	:	+ 5
rack travel mm	:	4.00
Rated speed rpm	:	1310
Tolerance 1/min	:	+ 15
rack travel mm	:	0.50
Tolerance mm	:	+ 0.50
Rated speed rpm	:	1450

LOW IDLE

control lever position degree	:	74.0
tolerance degree	:	+ 4.0

Setting point w/out bumper spring

Rated speed rpm	:	100
CRT mm min.	:	> 7.50

Testing:

Rated speed rpm	:	250
rack travel mm	:	6.10

Tolerance mm : \pm 0.10

TORQUE CONTROL

rack travel mm : 11.95
Tolerance mm : \pm 0.05

rack travel mm : 11.95
Tolerance mm : \pm 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 11.95
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.25
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 450
rack travel mm : 11.55
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 200

Check
speed 1/min : > 80
Check
speed 1/min : < 220

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 104.5
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : 4.0
Spreed

Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 79.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : \pm 5.0
Check tolerance
cm³/1000S. : \pm 8.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 6.10
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.03.88
Test oil : ISO 4113
Combination No. : 0 403 546 014
Injection pump
Pump designation : PE6MW100/720RS1157
EP type number : 0 413 506 103

Governor
Governor design. : RQ250/1200MW94-1
Governor no. : 0 420 082 028

Cust. part No. :

Customer spec. information
Customer : STEYR
Motor : WD 612.65
Power KW : 154.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance *NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.15
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 127.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 6.0

Rated speed rpm : 250

Rack travel in mm : 5.85

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000s. : ± 4.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1250
guide sleeve
travel mm : 6.30
Tolerance mm : ± 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.70
Tolerance mm : ± 0.20

Rated speed rpm : 375
guide sleeve
travel mm : 4.30
Tolerance mm : ± 0.30

Rated speed rpm : 1320
guide sleeve
travel mm : 9.10
Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 700

Rack travel in mm : 16.00

K04

Tolerance mm : ± 0.40

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure

hPa : 700

Del. quantity
cm³/1000 strokes : 127.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000s. : ± 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000s. : 6.0

CONTROL LEVER

control lever
position degree : 38.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.10

Rated speed rpm : 1245

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1325

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1450

LOW IDLE

control lever
position degree : 12.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 7.50

Testing:

Rated speed rpm : 250

rack travel mm : 5.85
Tolerance mm : ± 0.05
Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 13.15
Tolerance mm : ± 0.05

Rated speed rpm : 700
rack travel mm : 13.15
Tolerance mm : ± 0.05

ANEROID/ALTITUDE
COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 700
rack travel mm : 13.15
Tolerance mm : ± 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 10.75
Tolerance mm : ± 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 440
rack travel mm : 12.55
Tolerance mm : ± 0.15

Pressure hPa : 300
rack travel mm : 11.55
Tolerance mm : ± 0.05

Start interlock

Rated speed rpm : > 80
Rated speed rpm : < 190

Check
speed 1/min : > 100
Check
speed 1/min : < 210

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 700
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 125.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 73.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : ± 5.0
Check tolerance
cm³/1000S. : ± 8.0

LOW IDLE

Rated speed rpm : 250
Rack travel in mm : 5.85
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 4.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 23.04.91
Test oil : ISO 4113
Combination No. : 0 403 546 020
Injection pump
Pump designation : PE6MW100/720RS1157
EP type number : 0 413 506 103
Governor
Governor design. : RQ250/1200MW94-2
Governor no. : 0 420 082 047

Cust. part No. :

Customer spec. information
Customer : SNF
Motor : WD 612.66
Power KW : 165.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 250

Rack travel in mm : 5.90
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 14.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1250
guide sleeve
travel mm : 6.30
Tolerance mm : + 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.20
Tolerance mm : + 0.20

Rated speed rpm : 375
guide sleeve
travel mm : 3.60
Tolerance mm : + 0.30

Rated speed rpm : 1320
guide sleeve
travel mm : 9.20
Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever
position degree : 108
Rated speed rpm : 800

Rack travel in mm : 20.00

K08

Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200

Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 132.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 98.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 12.50
Rated speed rpm : 1243
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1315
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 72.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : > 7.50

Testing:

Rated speed rpm : 250

rack travel mm : 5.90
Tolerance mm : + 0.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 13.55
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 13.55
Tolerance mm : + 0.05

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 13.55
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.05
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 660
rack travel mm : 13.05
Tolerance mm : + 0.15

Pressure hPa : 400
rack travel mm : 11.55
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 80
Rated speed rpm : < 190

Check
speed 1/min : > 100
Check
speed 1/min : < 210

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 132.5
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

Aneroid pressure hPa

Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 80.5
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 135.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.90
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 14.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 09.12.97

Test oil : ISO 4113

Combination No. : 0 403 548 024

Injection pump

Pump designation : PE8MW100/720LS1128

EP type number : 0 413 508 103

Governor

Governor design. : RQV300...1150MW56-4

Governor no. : 0 420 083 155

Cust. part No. :

Customer spec. information

Customer : KHD

Motor : BF 8L 513

Power kW : 243.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Test nozzle holder
assembly

: 0 681 343 009

Opening pressure

bar : 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 740 014

Outside diameter : 6.0

K11

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 3.15

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6- 5

: - 4- 3

Phasing : 0-45-90-135-180-225

: -270-315

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

(B) SETTING OF INJECTION PUMP

WITH GOVERNOR

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 22.06.92
Test oil : ISO 4113
Combination No. : 0 403 548 025
Injection pump
Pump designation : PE8MW100/720LS1128
EP type number : 0 413 508 103
Governor
Governor design. : RQ300/1150MW63-3
Governor no. : 0 420 082 030

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : BF 8L 513
Power kW : 225.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 740 014
Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0
Prestroke mm : 3.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 8- 7- 2- 6
 : - 5- 4- 3
Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150
Rack travel in mm : 12.95
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 143.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000s. : ± 3.0
Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 6.60
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 15.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1220
guide sleeve
travel mm : 6.70
Tolerance mm : + 0.10

Rated speed rpm : 300
guide sleeve
travel mm : 1.30
Tolerance mm : + 0.20

Rated speed rpm : 650
guide sleeve
travel mm : 6.00
Tolerance mm : + 0.30

Rated speed rpm : 1280
guide sleeve
travel mm : 9.40
Tolerance mm : + 0.40

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 600

Rack travel in mm : 20.00

K13

Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : 1000

Del. quantity
cm³/1000 strokes : 143.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Speed
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 85.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.90
Rated speed rpm : 1195
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1275
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 63.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.20

Testing:

Rated speed rpm : 300

rack travel mm : 6.60
Tolerance mm : + 0.10

Rated speed rpm : 360

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 12.95
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 13.25
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 13.15
Tolerance mm : + 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.25
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.95
Tolerance mm : + 0.05

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 660
rack travel mm : 12.75
Tolerance mm : + 0.05

Pressure hPa : 530
rack travel mm : 12.35
Tolerance mm : + 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 13.15
Tolerance mm : + 0.15

Aneroid pressure
hPa : -
Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.60
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.06.91
Test oil : ISO 4113
Combination No. : 0 403 548 032
Injection pump
Pump designation : PE8MM100/720LS1173
EP type number : 0 413 508 108
Governor
Governor design. : RQ300/1150MM61-2
Governor no. : 0 420 082 036

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : F8L513
Power kW : 188.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1!!!!

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 740 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6
 : - 5- 4- 3

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.05
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 116.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 5.00

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1210
guide sleeve

travel mm : 6.70

Tolerance mm : ± 0.10

Rated speed rpm : 300

guide sleeve

travel mm : 1.70

Tolerance mm : ± 0.20

Rated speed rpm : 420

guide sleeve

travel mm : 3.80

Tolerance mm : ± 0.30

Rated speed rpm : 1270

guide sleeve

travel mm : 8.80

Tolerance mm : ± 0.20

GUIDE SLEEVE POSITION

control lever
position degree : 108

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : ± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 116.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 82.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.00

Rated speed rpm : 1198

Tolerance 1/min : ± 8

rack travel mm : 4.00

Rated speed rpm : 1260

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 64.0

tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 6.50

Testing:

Rated speed rpm : 300

rack travel mm : 5.00
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 12.05
Tolerance mm : + 0.05

Rated speed rpm : 650
rack travel mm : 12.35
Tolerance mm : + 0.05

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : + 0.05

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 650
Del. quantity
cm³/1000 strokes : 115.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 12.25
Tolerance mm : + 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 145.0

Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 13.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.00
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 29.03.89

Test oil : ISO 4113

Combination No. : 0 403 548 033

Injection pump

Pump designation : PE8MW100/720LS1173

EP type number : 0 413 508 108

Governor

Governor design. : RQV450...1150MW70-1

Governor no. : 0 420 083 179

Cust. part No. :

Customer spec. information

Customer : KHD

Motor : F8L513

Power KW : 159.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1!!!!_

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Test nozzle holder assembly

: 0 681 343 009

Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 740 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0

Tolerance bar : ± 1.0

Prestroke mm : 3.15

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6
: - 5- 4- 3

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 10.25

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 92.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 450

Rack travel in mm : 4.90
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0

Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.5

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1190
guide sleeve
travel mm : 9.00
Tolerance mm : + 0.10

Rated speed rpm : 450
guide sleeve
travel mm : 1.40
Tolerance mm : + 0.20

Rated speed rpm : 650
guide sleeve
travel mm : 3.10
Tolerance mm : + 0.30

Rated speed rpm : 1230
guide sleeve
travel mm : 9.70
Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1150

Rack travel in mm : 16.50

K20

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150
Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 92.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spread
Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

CONTROL LEVER

control lever
position degree : 107.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.20
Rated speed rpm : 1185
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1235
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1320

LOW IDLE

control lever
position degree : 70.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 6.50

Testing:

Rated speed rpm : 450

rack travel mm : 4.90
Tolerance mm : + 0.10

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 10.25
Tolerance mm : + 0.05

Rated speed rpm : 950
rack travel mm : 10.65
Tolerance mm : + 0.05

Rated speed rpm : 1050
rack travel mm : 10.35
Tolerance mm : + 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 370

Check
speed 1/min : > 80
Check
speed 1/min : < 390

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : -
Rated speed rpm : 950
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 10.35
Tolerance mm : + 0.15

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 145.0

Tolerance
cm³/1000 strokes : + 5.0
Check tolerance
cm³/1000S. : + 8.0

LOW IDLE

Rated speed rpm : 450

Rack travel in mm : 4.90
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000S. : + 4.5
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 09.02.93
Test oil : ISO 4113
Combination No. : 0 403 548 039
Injection pump
Pump designation : PE8MW100/720LS1128
: -1
EP type number : 0 413 508 109
Governor
Governor design. : RQV300...1150MW56-6
Governor no. : 0 420 083 254

Cust. part No. :

Customer-spec. information
Customer : KHD
Motor : BF 8L 513
Power KW : 225.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder
assembly : 0 681 343 009

Opening pressure
bar : 173.5
Tolerance bar : ± 1.5

Test lines : 1 680 740 014

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 31.0
Tolerance bar : ± 1.0

Prestroke mm : 3.15
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 8- 7- 2- 6
: - 5- 4- 3

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 1150

Rack travel in mm : 12.95
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 143.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 3.0

Speed

Tolerance
cm³/1000 strokes : 3.5

Check tolerance
cm³/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 7.00

Tolerance mm : + 0.10

Del. quantity

cm³/1000 strokes : 15.0

Tolerance

cm³/1000 strokes : + 2.0

Check tolerance

cm³/1000S. : + 4.0

Spread

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 5.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1220

guide sleeve

travel mm : 8.90

Tolerance mm : + 0.10

Rated speed rpm : 300

guide sleeve

travel mm : 0.70

Tolerance mm : + 0.20

Rated speed rpm : 600

guide sleeve

travel mm : 4.20

Tolerance mm : + 0.30

Rated speed rpm : 1300

guide sleeve

travel mm : 10.00

Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1200

Rack travel in mm : 16.50

Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1150

Aneroid pressure

hPa : 1000

Del. quantity

cm³/1000 strokes : 143.0

Tolerance

cm³/1000 strokes : + 1.0

Check tolerance

cm³/1000S. : + 3.0

Spread

Tolerance

cm³/1000 strokes : 3.5

Check tolerance

cm³/1000S. : 6.0

CONTROL LEVER

control lever

position degree : 122.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 11.90

Rated speed rpm : 1195

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1305

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : + 0.50

Rated speed rpm : 1400

LOW IDLE

control lever

position degree : 88.0

tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 8.50

Testing:

Rated speed rpm : 300

rack travel mm : 7.00
Tolerance mm : \pm 0.10

Rated speed rpm : 370

TORQUE CONTROL

Rated speed rpm : 1150
rack travel mm : 12.95
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 800
rack travel mm : 13.15
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 13.40
Tolerance mm : \pm 0.10

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 11.95
Tolerance mm : \pm 0.05

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 660
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Pressure hPa : 530
rack travel mm : 12.35
Tolerance mm : \pm 0.15

Start interlock

Rated speed rpm : > 100
Rated speed rpm : < 220

Check
speed 1/min : > 80
Check
speed 1/min : < 250

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 144.0
Tolerance
cm³/1000 strokes : \pm 1.5
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 7.0

rack travel mm : 13.15
Tolerance mm : \pm 0.15

Aneroid pressure

hPa : -
Rated speed rpm : 450
Del. quantity
cm³/1000 strokes : 108.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 180.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 18.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 7.00
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 15.0
Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 3.5
Check tolerance
cm³/1000S. : 5.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 12.09.95
Test oil : ISO 4113
Combination No. : 0 401 416 050
Injection pump
Pump designation : PE6R130/700RS1511
EP type number : 0 411 436 003

Governor
Governor design. :
Governor no. :

Cust. part No. : 3825418 P03

Customer spec. information
Customer : PENTA
Motor : TAD 1631 G
Power KW : 558.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

K26

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.55
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240
: -300

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 473.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000s. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 11.0

Check tolerance
cm³/1000S. : 15.0

Rated speed rpm : 250

Rack travel in mm : 6.25
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 95.0

Tolerance
cm³/1000 strokes : ± 4.0

Check tolerance
cm³/1000S. : ± 7.0

Spreed
Tolerance
cm³/1000 strokes : 11.0

Check tolerance
cm³/1000S. : 15.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 473.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spreed
Tolerance
cm³/1000 strokes : 11.0

Check tolerance
cm³/1000S. : 15.0

LOW IDLE

Testing:

Rated speed rpm : 250
rack travel mm : 6.25

Tolerance mm : ± 0.20

TORQUE CONTROL

K27

Rated speed rpm : 700
rack travel mm : 13.60
Tolerance mm : ± 0.05

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 6.25
Tolerance mm : ± 0.20

Del. quantity
cm³/1000 strokes : 95.0

Tolerance
cm³/1000 strokes : ± 4.0

Check tolerance
cm³/1000S. : ± 7.0

Spreed
Tolerance
cm³/1000 strokes : 11.0

Check tolerance
cm³/1000S. : 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 29.09.95
Test oil : ISO 4113

Combination No. : 0 401 446 150

Injection pump
Pump designation : PE6R130/720RS1506
EP type number : 0 411 436 002

Governor
Governor design. : RQV250...1050R4K
Governor no. : 0 421 415 003

Cust. part No. : 865 020 P02 v. 08/94

Customer-spec. information
Customer : PENTA
Motor : TAMD163 P-A
Power kW : 553.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Vibration
damper
(RoBo diaphragm) : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 450.0

Tolerance
cm³/1000 strokes : ± 2.0

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 13.0

Check tolerance
cm³/1000S. : 17.0

Rated speed rpm : 250

Rack travel in mm : 6.65
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 95.0

Tolerance
cm³/1000 strokes : ± 4.0

Check tolerance
cm³/1000S. : ± 7.0

Spread

Tolerance
cm³/1000 strokes : 11.0

Check tolerance
cm³/1000S. : 15.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1106
guide sleeve
travel mm : 9.18
Tolerance mm : ± 0.25

Rated speed rpm : 250
guide sleeve
travel mm : 1.26
Tolerance mm : ± 0.25

Rated speed rpm : 895
guide sleeve
travel mm : 6.42
Tolerance mm : ± 0.25

Rated speed rpm : 310
guide sleeve
travel mm : 2.00

L01

Tolerance mm : ± 0.25

Rated speed rpm : 360
guide sleeve
travel mm : 2.41
Tolerance mm : ± 0.25

Rated speed rpm : 570
guide sleeve
travel mm : 3.54
Tolerance mm : ± 0.25

Rated speed rpm : 1360
guide sleeve
travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1205

Rack travel in mm : 11.00
Tolerance mm : ± 2.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050
Aneroid pressure
hPa : 2200
Del. quantity
cm³/1000 strokes : 450.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000S. : ± 5.0
Spread
Tolerance
cm³/1000 strokes : 13.0
Check tolerance
cm³/1000S. : 17.0

CONTROL LEVER

control lever
position degree : 65.0
tolerance degree : ± 4.0

control lever
position degree : 119.0
tolerance degree : ± 4.0

RATED SPEED
rack travel mm : 13.40

Rated speed rpm : 1105
 Tolerance 1/min : + 5

 rack travel mm : 4.00
 Rated speed rpm : 1200
 Tolerance 1/min : + 15

 rack travel mm : 0.50
 Tolerance mm : + 0.50
 Rated speed rpm : 1300

LOW IDLE

control lever
 position degree : 74.0
 tolerance degree : + 4.0

control lever
 position degree : 20.0
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 150
 CRT mm min. : > 7.70

Testing:

Rated speed rpm : 250
 rack travel mm : 6.65
 Tolerance mm : + 0.10

Rated speed rpm : 380

TORQUE CONTROL

Rated speed rpm : 1050
 rack travel mm : 14.40
 Tolerance mm : + 0.05

Rated speed rpm : 850
 rack travel mm : 13.20
 Tolerance mm : + 0.15

Rated speed rpm : 975
 rack travel mm : 14.30
 Tolerance mm : + 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

L02

Rated speed rpm : 1050
 Pressure hPa : 2200
 rack travel mm : 14.40
 Tolerance mm : + 0.05

Rated speed rpm : 500
 Pressure hPa : -
 rack travel mm : 8.70
 Tolerance mm : + 0.15

MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 1580
 rack travel mm : 5.10
 Tolerance mm : + 0.10

Pressure hPa : 400
 rack travel mm : 0.25
 Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
 hPa : 2200
 Rated speed rpm : 850
 Del. quantity
 cm³/1000 strokes : 412.0
 Tolerance
 cm³/1000 strokes : + 4.0
 Check tolerance
 cm³/1000s. : + 7.0
 Spreed
 Tolerance
 cm³/1000 strokes : 15.0
 Check tolerance
 cm³/1000s. : 19.0

Aneroid pressure
 hPa : -
 Rated speed rpm : 500
 Del. quantity
 cm³/1000 strokes : 238.0
 Tolerance
 cm³/1000 strokes : + 2.0
 Check tolerance
 cm³/1000s. : + 5.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
 rack travel mm : 13.10
 Tolerance mm : + 0.30

Del. quantity
cm³/1000 strokes : 385.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000s. : ± 25.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 6.65
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : ± 4.0
Check tolerance
cm³/1000s. : ± 7.0
Spreed
Tolerance
cm³/1000 strokes : 11.0
Check tolerance
cm³/1000s. : 15.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 16.08.95
Test oil : ISO 4113

Combination No. : 0 401 846 948

Injection pump
Pump designation : PE6P120A320RS3206-1
EP type number : 0 411 826 775

Governor
Governor design. : RQ750PA783-2
Governor no. : 0 421 801 600

Cust. part No. : 864851 P07 V. 03/95

Customer-spec. information
Customer : PENTA
Motor : TWD 121 OG

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration
damper
(RoBo diaphragm) : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

L04

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 3.50
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 10.50
Tolerance mm : + 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.30
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 325.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance cm ³ /1000S.	: + 4.0
--	---------

Spread

Tolerance cm ³ /1000 strokes	: 5.0
--	-------

Check tolerance cm ³ /1000S.	: 9.0
--	-------

Rated speed rpm	: 300
Del. quantity cm ³ /1000 strokes	: 20.0
Tolerance cm ³ /1000 strokes	: + 3.0
Check tolerance cm ³ /1000S.	: + 6.0
Spread	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 8.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 757
guide sleeve travel mm	: 4.85
Tolerance mm	: + 0.25

Rated speed rpm	: 510
guide sleeve travel mm	: -7.81
Tolerance mm	: + 0.25

Rated speed rpm	: 860
guide sleeve travel mm	: 18.06
Tolerance mm	: + 0.25

Rated speed rpm	: 806
guide sleeve travel mm	: 10.00
Tolerance mm	: + 0.25

Rated speed rpm	: 860
guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 325.0
Tolerance cm ³ /1000 strokes	: + 1.0
Check tolerance cm ³ /1000S.	: + 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 88.0
tolerance degree	: + 4.0

RATED SPEED

rack travel mm	: 12.30
Rated speed rpm	: 751
Tolerance 1/min	: + 3

rack travel mm	: 4.00
Rated speed rpm	: 786
Tolerance 1/min	: + 7

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 850

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 748
rack travel mm	: 12.30

Rated speed rpm	: 783
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm	: 0.50
Tolerance mm	: + 0.50
Rated speed rpm	: 850

Rated speed rpm	: 749
rack travel mm	: 12.30

Rated speed rpm	: 784
Tolerance 1/min	: + 4
rack travel mm	: 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 750
rack travel mm : 12.30

Rated speed rpm : 785
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 751
rack travel mm : 12.30

Rated speed rpm : 786
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 752
rack travel mm : 12.30

Rated speed rpm : 787
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

Rated speed rpm : 753
rack travel mm : 12.30

Rated speed rpm : 788
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 850

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.30
Tolerance mm : + 0.05

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 20.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000s. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 8.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 10.12.92
Test oil : ISO 4113
Combination No. : 0 401 876 340
Injection pump
Pump designation : PE6P110A320RS499
EP type number : 0 411 816 169
Governor
Governor design. : RSV325...1400POA374
: -9
Governor no. : 0 421 833 335
Cust. part No. : 864433-P04

Customer-spec. information
Customer : PENTA
Motor : TAMD61
Power KW : 221.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Test nozzle holder
assembly : 0 681 343 009
Opening pressure
bar : 173.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 015
Outside diameter : 6.0

L07

x inside diameter : 1.5
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 2.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 1- 5- 3- 6- 2-
: 4
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : ± 1.0
Check tolerance
cm³/1000S. : ± 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 325

Rack travel in mm : 3.70
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 2.0

Check tolerance
cm³/1000S. : + 4.0

Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : + 0.20

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 900

Del. quantity
cm³/1000 strokes : 120.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 3.0

Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

L08

control lever
position degree : 118.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 10.10
Rated speed rpm : 1455
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1540
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1630

LOW IDLE

control lever
position degree : 83.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 4.20
Tolerance mm : + 0.10

Rated speed rpm : 100

Testing:

Rated speed rpm : 325
rack travel mm : 3.70
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 480
Tolerance 1/min : + 30

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 900
rack travel mm : 11.10
Tolerance mm : + 0.10

Rated speed rpm : 500

Pressure hPa : -
rack travel mm : 9.00
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 720
rack travel mm : 1.80
Tolerance mm : + 0.10

Pressure hPa : 370
rack travel mm : 0.25
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 900
Rated speed rpm : 1400
Del. quantity
cm³/1000 strokes : 123.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 5.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 62.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : + 15.0
Check tolerance
cm³/1000s. : + 19.0

LOW IDLE

Rated speed rpm : 325

L09

Rack travel in mm : 3.70
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 13.0
Tolerance
cm³/1000 strokes : + 2.0
Check tolerance
cm³/1000s. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000s. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.06.96
Test oil : ISO 4113

Combination No. : 0 401 876 809

Injection pump
Pump designation : PE6P120A32ORS3355
EP type number : 0 411 826 814

Governor
Governor design. : RSV325...1200P1A605
Governor no. : 0 421 833 487

Cust. part No. : 3825834 P05 v.05/96

Customer spec. information
Customer : PENTA
Motor : TWD731ME
Power KW : 175.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 7.80
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1200

Rack travel in mm : 10.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 126.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spreed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Rated speed rpm : 325

Rack travel in mm : 4.40

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 24.0

Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000S. : + 5.0

Spreed

Tolerance
cm³/1000 strokes : 3.0

Check tolerance
cm³/1000S. : 6.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.85
Tolerance mm : + 0.55

governor spring
pre-tension
click setting x : 6.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1200
Aneroid pressure
hPa : 1500
Del. quantity
cm³/1000 strokes : 126.0
Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000S. : 11.0

CONTROL LEVER

control lever
position degree : 71.0
tolerance degree : + 4.0

control lever
position degree : 121.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 9.60
Rated speed rpm : 1230
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1284
Tolerance 1/min : + 15

rack travel mm : 0.85
Tolerance mm : + 0.55
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 81.0
tolerance degree : + 4.0

control lever
position degree : 31.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 325
rack travel mm : 3.90
Tolerance mm : + 0.10

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : + 0.10
rack travel mm : 2.00

Rated speed rpm : 390
Tolerance 1/min : + 30

TORQUE CONTROL

Rated speed rpm : 1200
rack travel mm : 10.60
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 10.60
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1500
rack travel mm : 10.60
Tolerance mm : + 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 7.80
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 650
rack travel mm : 2.50
Tolerance mm : + 0.15

Pressure hPa : 260
rack travel mm : 0.25
Tolerance mm : + 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 147.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 87.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 24.0
Tolerance
cm³/1000 strokes : + 2.5
Check tolerance
cm³/1000S. : + 5.0
Spreed
Tolerance
cm³/1000 strokes : 3.0
Check tolerance
cm³/1000S. : 6.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113
Combination No. : 0 402 016 706
Injection pump
Pump designation : PES6P120A700LS3229
: -2
EP type number : 0 412 026 797
Governor
Governor design. :
Governor no. :
Cust. part No. : 51.11103-7523

Customer-spec. information
Customer : MAN
Motor : D 2866 TE
Power KW : 218.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 1.5
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 075

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 3.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 10.50
Tolerance mm : ± 1.50
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 11.25
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 232.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 232.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 11.25

Tolerance mm : ± 0.05

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97

Test oil : ISO 4113

Combination No. : 0 402 016 707

Injection pump

Pump designation : PES6P120A700LS3229
: -3

EP type number : 0 412 026 798

Governor

Governor design. :

Governor no. :

Cust. part No. : 51.11103-7520

Customer-spec. information

Customer : MAN

Motor : D 2866 LE

Power kW : 265.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Test nozzle holder assembly

: 1 688 901 019

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.55

Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 282.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000s. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 282.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000s. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000s. : 9.0

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 12.55

Tolerance mm : + 0.05

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 27.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000s. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.97
Test oil : ISO 4113

Combination No. : 0 402 046 873

Injection pump
Pump designation : PES6P110A32ORS3329
EP type number : 0 412 016 743

Governor
Governor design. : RQV325...1250PA1251
Governor no. : 0 421 814 164

Cust. part No. : 1305227/0

Customer spec. information
Customer : DAF
Motor : NS177M
Power KW : 177.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

L17

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 149.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 12.0

Check tolerance
cm³/1000S. : 15.0

Rated speed rpm : 325

Rack travel in mm : 4.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 26.0

Tolerance
cm³/1000 strokes : ± 2.5

Check tolerance
cm³/1000S. : ± 5.0

Spread

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1308
guide sleeve

travel mm : 10.40
Tolerance mm : ± 0.15

Rated speed rpm : 325

guide sleeve
travel mm : 1.25

Tolerance mm : ± 0.20

Rated speed rpm : 868

guide sleeve
travel mm : 5.45

Tolerance mm : ± 0.25

Rated speed rpm : 520

guide sleeve
travel mm : 3.02

Tolerance mm : ± 0.25

Rated speed rpm : 1510

guide sleeve
travel mm : 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1360

Rack travel in mm : 11.25

Tolerance mm : ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 149.5

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 12.0

Check tolerance
cm³/1000S. : 15.0

CONTROL LEVER

control lever

position degree : 123.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.25

Rated speed rpm : 1290

Tolerance 1/min : ± 5

Check
speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 1375

Tolerance 1/min : ± 15

Check
speed 1/min : ± 20

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 5.90

Testing:

Rated speed rpm : 325
rack travel mm : 4.40
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 12.25
Tolerance mm : \pm 0.10

Rated speed rpm : 1250
rack travel mm : 12.25
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 12.25
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 6.80
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 430
rack travel mm : 10.90
Tolerance mm : \pm 0.05

Pressure hPa : 220
rack travel mm : 7.85
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 153.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 12.25
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 92.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Spreed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.97

Test oil : ISO 4113

Combination No. : 0 402 046 875

Injection pump

Pump designation : PES6P110A320RS3329Z

EP type number : 0 412 016 744

Governor

Governor design. : RQV325...1250PA1251

Governor no. : 0 421 814 164

Cust. part No. : 1309376/0

Customer-spec. information

Customer : DAF

Motor : NS156M

Power KW : 156.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : + 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : + 0.1

Overflow quantity

min. l/h : 160

Tolerance l/h : + 20.0

Test nozzle holde assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : + 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : + 1.0

Prestroke mm : 5.25

Tolerance mm : + 0.05

Check

tolerance mm : + 0.10

Rack travel in mm : 20.50

Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : + 0.50

Check

tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10

Check

tolerance °NW : + 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85

Tolerance mm : + 0.05

Del. quantity cm ³ /1000 strokes	: 144.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 12.0
Check tolerance cm ³ /1000S.	: 15.0

Rated speed rpm	: 325
Rack travel in mm	: 4.50
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 26.0
Tolerance cm ³ /1000 strokes	: ± 2.5
Check tolerance cm ³ /1000S.	: ± 5.0
Spread	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000S.	: 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1298
guide sleeve travel mm	: 10.25
Tolerance mm	: ± 0.15
Rated speed rpm	: 325
guide sleeve travel mm	: 1.25
Tolerance mm	: ± 0.20
Rated speed rpm	: 863
guide sleeve travel mm	: 5.41
Tolerance mm	: ± 0.25
Rated speed rpm	: 520

guide sleeve travel mm	: 3.02
Tolerance mm	: ± 0.25

Rated speed rpm	: 1510
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1370

Rack travel in mm	: 10.85
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure hPa	: 1500
Del. quantity cm ³ /1000 strokes	: 144.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 12.0
Check tolerance cm ³ /1000S.	: 15.0

CONTROL LEVER

control lever position degree	: 123.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 10.85
Rated speed rpm	: 1300
Tolerance 1/min	: ± 5
Check speed 1/min	: ± 10

rack travel mm	: 4.00
Rated speed rpm	: 1375
Tolerance 1/min	: ± 15
Check speed 1/min	: ± 20
rack travel mm	: 0.50

Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.10

Rated speed rpm : 1250
rack travel mm : 11.85
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1500
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 7.35
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370
rack travel mm : 10.75
Tolerance mm : \pm 0.05

Pressure hPa : 200
rack travel mm : 8.40
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 145.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 11.85
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 94.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

LOW IDLE

Rated speed rpm : 325
Rack travel in mm : 4.50
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0
Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cn3/1000S. : 7.5

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.97
Test oil : ISO 4113

Combination No. : 0 402 046 876

Injection pump
Pump designation : PES6P110A320RS3329Y
EP type number : 0 412 016 756

Governor
Governor design. : RQV325...1250PA1251
Governor no. : 0 421 814 164

Cust. part No. : 1309375/0

Customer spec. information
Customer : DAF
Motor : NS133M
Power KW : 133.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 160
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.25
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 20.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85
Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 146.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000s.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 12.0
Check tolerance cm ³ /1000s.	: 15.0

Rated speed rpm	: 325
Rack travel in mm	: 4.50
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 26.0
Tolerance cm ³ /1000 strokes	: ± 2.5
Check tolerance cm ³ /1000s.	: ± 5.0
Spread	
Tolerance cm ³ /1000 strokes	: 4.0
Check tolerance cm ³ /1000s.	: 7.5

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1298
guide sleeve travel mm	: 10.25
Tolerance mm	: ± 0.15
Rated speed rpm	: 325
guide sleeve travel mm	: 1.25
Tolerance mm	: ± 0.20
Rated speed rpm	: 863
guide sleeve travel mm	: 5.41
Tolerance mm	: ± 0.25
Rated speed rpm	: 520

guide sleeve travel mm	: 3.02
Tolerance mm	: ± 0.25
Rated speed rpm	: 1510
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1370
Rack travel in mm	: 10.85
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1000
Aneroid pressure hPa	: 1000
Del. quantity cm ³ /1000 strokes	: 146.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000s.	: ± 4.0
Spread	
Tolerance cm ³ /1000 strokes	: 12.0
Check tolerance cm ³ /1000s.	: 15.0

CONTROL LEVER

control lever position degree	: 123.0
tolerance degree	: ± 4.0

RATED SPEED

rack travel mm	: 10.85
Rated speed rpm	: 1285
Tolerance 1/min	: ± 5
Check speed 1/min	: ± 10
rack travel mm	: 4.00
Rated speed rpm	: 1360
Tolerance 1/min	: ± 15
Check speed 1/min	: ± 20
rack travel mm	: 0.50

Tolerance mm : \pm 0.50
Rated speed rpm : 1500

LOW IDLE

control lever
position degree : 76.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 225
CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 325
rack travel mm : 4.50
Tolerance mm : \pm 0.10

Rated speed rpm : 375

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 700
rack travel mm : 11.85
Tolerance mm : \pm 0.10

Rated speed rpm : 1250
rack travel mm : 11.85
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1000
rack travel mm : 11.85
Tolerance mm : \pm 0.05

Rated speed rpm : 600
Pressure hPa : -
rack travel mm : 6.50
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 310
rack travel mm : 10.55
Tolerance mm : \pm 0.05

Pressure hPa : 130
rack travel mm : 7.85
Tolerance mm : \pm 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1000
Rated speed rpm : 700
Del. quantity
cm³/1000 strokes : 147.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

rack travel mm : 11.85
Tolerance mm : \pm 0.10

Aneroid pressure
hPa : -
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 83.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.5

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 26.0
Tolerance
cm³/1000 strokes : \pm 2.5
Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm3/1000s. : 7.5

End of test specification sheet



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 17.12.97

Test oil : ISO 4113

Combination No. : 0 402 066 711

Injection pump

Pump designation : PES6P120A120RS3358

EP type number : 0 412 026 784

Governor

Governor design. : RSV475...1100P2A661

Governor no. : 0 421 833 581

Cust. part No. : 3283574

Customer spec. information

Customer : CUMMINS

Motor : 6BTAA ELITE

Power KW : 139.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Overflow quantity

min. l/h : 100

Tolerance l/h : ± 20.0

Test nozzle holder
assembly

: 1 688 901 103

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 6.75

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.80
Tolerance mm : \pm 0.05

Del. quantity
cm³/1000 strokes : 150.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 3.0

Speed

Tolerance
cm³/1000 strokes : 4.0

Check tolerance
cm³/1000S. : 7.5

Rated speed rpm : 475

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 27.5

Tolerance
cm³/1000 strokes : \pm 2.0

Check tolerance
cm³/1000S. : \pm 4.5

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 9.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : \pm 0.20

governor spring
pre-tension
click setting x : 5.25

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100
Aneroid pressure
hPa : 1600
Del. quantity
cm³/1000 strokes : 150.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 3.0
Speed
Tolerance
cm³/1000 strokes : 4.0
Check tolerance
cm³/1000S. : 7.5

CONTROL LEVER

control lever
position degree : 108.0
tolerance degree : \pm 4.0

RATED SPEED
rack travel mm : 10.80
Rated speed rpm : 1145
Tolerance 1/min : \pm 5

rack travel mm : 4.00
Rated speed rpm : 1270
Tolerance 1/min : \pm 15

rack travel mm : 0.85
Tolerance mm : \pm 0.55
Rated speed rpm : 1400

rack travel mm : 4.00
Rated speed rpm : 1280
Tolerance 1/min : \pm 15

LOW IDLE

control lever
position degree : 88.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 475
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Testing:

Rated speed rpm : 475
rack travel mm : 5.80
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 635
Tolerance 1/min : \pm 30

TORQUE CONTROL

Rated speed rpm : 1100
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 750
rack travel mm : 11.80
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1600
rack travel mm : 11.80
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.30
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 500
Pressure hPa : 1000
rack travel mm : 11.30
Tolerance mm : \pm 0.20

Pressure hPa : 450
rack travel mm : 9.00
Tolerance mm : \pm 0.05

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1600
Rated speed rpm : 750
Del. quantity
cm³/1000 strokes : 163.0

Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed

Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000s. : 16.0

Aneroid pressure

hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 82.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.25
Tolerance mm : \pm 0.75
Del. quantity
cm³/1000 strokes : 175.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 25.0

LOW IDLE

Rated speed rpm : 475
Rack travel in mm : 5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 27.5
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.5
Speed
Tolerance
cm³/1000 strokes : 6.0
Check tolerance
cm³/1000s. : 9.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113
Combination No. : 0 402 618 811

Injection pump
Pump designation : PE8P120A500LS7891
EP type number : 0 412 628 914

Governor
Governor design. :
Governor no. :

Cust. part No. : 51.11103-7343

Customer-spec. information
Customer : MAN
Motor : D2848 LE201/203
Power KW : 414.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

M05

x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.04
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.50

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.60
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 340.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 115.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure
hPa : -

Del. quantity
cm³/1000 strokes : 340.0

Tolerance
cm³/1000 strokes : +- 1.0

Check tolerance
cm³/1000S. : +- 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 700

rack travel mm : 12.60

Tolerance mm : +- 0.05

LOW IDLE

Rated speed rpm : 300

Del. quantity
cm³/1000 strokes : 115.0

Tolerance
cm³/1000 strokes : +- 3.0

Check tolerance
cm³/1000S. : +- 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113
Combination No. : 0 402 646 647
Injection pump
Pump designation : PE6P130A1320/5RS7335
EP type number : 0 412 636 827

Governor
Governor design. : RQV350...900PA760-1
Governor no. : 0 421 813 617

Cust. part No. : 76.61.192

Customer-spec. information
Customer : GUASCOR
Motor : F180, F360 TITAB
Power KW : 368.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Test nozzle holde
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.45
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 10.70
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 303.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

Rated speed rpm : 350

Rack travel in mm : 4.70
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 23.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread
Tolerance
cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 958
guide sleeve
travel mm : 8.57
Tolerance mm : + 0.25

Rated speed rpm : 350
guide sleeve
travel mm : 1.62
Tolerance mm : + 0.25

Rated speed rpm : 469
guide sleeve
travel mm : 3.42
Tolerance mm : + 0.25

Rated speed rpm : 519
guide sleeve
travel mm : 4.07
Tolerance mm : + 0.25

Rated speed rpm : 720
guide sleeve
travel mm : 5.69
Tolerance mm : + 0.25

Rated speed rpm : 1150
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

MO8

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1060

Rack travel in mm : 7.00
Tolerance mm : + 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900
Aneroid pressure

hPa : -

Del. quantity
cm³/1000 strokes : 303.5

Tolerance
cm³/1000 strokes : + 1.5

Check tolerance
cm³/1000S. : + 5.0

Spread
Tolerance
cm³/1000 strokes : 6.0

Check tolerance
cm³/1000S. : 10.0

CONTROL LEVER

control lever
position degree : 61.0
tolerance degree : + 4.0

control lever
position degree : 117.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.70
Rated speed rpm : 945
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1020
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 62.0
tolerance degree : \pm 4.0

control lever
position degree : 12.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : $>$ 6.50

Testing:

Rated speed rpm : 350
rack travel mm : 4.70
Tolerance mm : \pm 0.10

Rated speed rpm : 410

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 10.70
Tolerance mm : \pm 0.05

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 10.70
Tolerance mm : \pm 0.20

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 10.0
Check tolerance
cm³/1000S. : 14.0

M09

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 06.02.89
Test oil : ISO 4113

Combination No. : 0 402 646 850

Injection pump
Pump designation : PE6P130A720RS7140
EP type number : 0 412 636 807

Governor
Governor design. : RQV250...900PA869
Governor no. : 0 421 813 634

Cust. part No. :

Customer-spec. information
Customer : VOLVO-PENTA
Motor : TID 162 AP
Power KW : 357.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder
assembly : 1 688 901 019

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 067

Outside diameter : 6.0

x inside diameter : 1.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.65
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 10.50
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

BASIC SETTING

Del. quantity
cm³/1000 strokes : 293.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 5.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 3.80
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 19.5
Tolerance
cm³/1000 strokes : + 2.5

Check tolerance
cm³/1000s. : + 5.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 7.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 925
guide sleeve
travel mm : 7.40
Tolerance mm : + 0.10

Rated speed rpm : 250
guide sleeve
travel mm : 1.10
Tolerance mm : + 0.20

Rated speed rpm : 350
guide sleeve
travel mm : 2.30
Tolerance mm : + 0.30

Rated speed rpm : 700
guide sleeve
travel mm : 4.70
Tolerance mm : + 0.30

Rated speed rpm : 985
guide sleeve
travel mm : 8.30
Tolerance mm : + 0.20

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 980

Rack travel in mm : 16.50
Tolerance mm : + 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 293.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000s. : + 5.0

Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000s. : 9.0

CONTROL LEVER

control lever
position degree : 115.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 9.20
Rated speed rpm : 923
Tolerance 1/min : + 3

rack travel mm : 4.00
Rated speed rpm : 985
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 67.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : > 5.30

Testing:

Rated speed rpm : 250
rack travel mm : 3.80

Tolerance mm : \pm 0.10

Rated speed rpm : 305

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 240.0

Tolerance
cm³/1000 strokes : \pm 20.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 3.80

Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 19.5

Tolerance
cm³/1000 strokes : \pm 2.5

Check tolerance
cm³/1000S. : \pm 5.0

Speed
Tolerance

cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 7.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113

Combination No. : 0 402 648 602

Injection pump
Pump designation : PE8P110A320RS7398
EP type number : 0 412 618 800

Governor
Governor design. : RQV300...900PA1252K
Governor no. : 0 421 815 484

Cust. part No. :

Customer-spec. information
Customer : TATRA
Motor : T3B-928.60
Power KW : 255.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5
Tolerance bar : ± 0.1

Overflow quantity
min. l/h : 110
Tolerance l/h : ± 20.0

Test nozzle holder
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 5.05
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 1.00

Firing order : 1- 8- 5- 4- 7
: - 2- 3- 6

Phasing : 0-45-90-135-180
: -225-270-315
Tolerance : ± 0.30
Check
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 14.00
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 191.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 5.80

Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 958

guide sleeve
travel mm : 8.79

Tolerance mm : + 0.15

Rated speed rpm : 300

guide sleeve
travel mm : 1.63

Tolerance mm : + 0.20

Rated speed rpm : 777

guide sleeve
travel mm : 6.70

Tolerance mm : + 0.25

Rated speed rpm : 520

guide sleeve
travel mm : 3.73

Tolerance mm : + 0.25

Rated speed rpm : 1260

guide sleeve
travel mm : 13.50

Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1115

Rack travel in mm : 13.00

Tolerance mm : + 1.50

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 191.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever

position degree : 65.0

tolerance degree : + 4.0

control lever

position degree : 119.0

tolerance degree : + 4.0

RATED SPEED

rack travel mm : 13.00

Rated speed rpm : 945

Tolerance 1/min : + 5

rack travel mm : 4.00

Rated speed rpm : 1065

Tolerance 1/min : + 15

rack travel mm : 0.50

Tolerance mm : \pm 0.50
Rated speed rpm : 1150

LOW IDLE

control lever
position degree : 70.0
tolerance degree : \pm 4.0

control lever
position degree : 16.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 250
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 14.00
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 13.10
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 12.60
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1500
rack travel mm : 14.00
Tolerance mm : \pm 0.05

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 8.60

M15

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 375
rack travel mm : 10.15
Tolerance mm : \pm 0.15

Pressure hPa : 750
rack travel mm : 12.75
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 170

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 198.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 5.0

rack travel mm : 12.60
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50

Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 255.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000S. : \pm 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97

Test oil : ISO 4113

Combination No. : 0 402 648 602A

Injection pump

Pump designation : PE8P110A320RS739B

EP type number : 0 412 618 800

Governor

Governor design. : RQV300...900PA1252K

Governor no. : 0 421 815 484

Cust. part No. :

Customer-spec. information

Customer : TATRA

Motor : T3B-928.50

Power KW : 230.0

TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. L/h : 110

Tolerance L/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.05

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 13.00

Tolerance mm : ± 1.00

Firing order : 1- 8- 5- 4- 7

: - 2- 3- 6

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.30

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.30

Tolerance mm : ± 0.05

Del. quantity cm ³ /1000 strokes	: 175.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 250
Rack travel in mm	: 5.80
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 40.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Speed	
Tolerance cm ³ /1000 strokes	: 6.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	: 957
guide sleeve travel mm	: 8.79
Tolerance mm	: ± 0.15
Rated speed rpm	: 300
guide sleeve travel mm	: 1.63
Tolerance mm	: ± 0.20
Rated speed rpm	: 776
guide sleeve travel mm	: 6.70
Tolerance mm	: ± 0.25
Rated speed rpm	: 520

guide sleeve travel mm	: 3.73
Tolerance mm	: ± 0.25

Rated speed rpm	: 1260
guide sleeve travel mm	: 13.50
Tolerance mm	: ± 0.50

GUIDE SLEEVE POSITION

control lever position degree	: - 1
Rated speed rpm	: 1120

Rack travel in mm	: 12.30
Tolerance mm	: ± 1.30

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 900
Aneroid pressure hPa	: -
Del. quantity cm ³ /1000 strokes	: 175.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 61.0
tolerance degree	: ± 4.0

control lever position degree	: 115.0
tolerance degree	: ± 4.0

RATED SPEED	
rack travel mm	: 12.30
Rated speed rpm	: 945
Tolerance 1/min	: ± 5

rack travel mm	: 4.00
Rated speed rpm	: 1095
Tolerance 1/min	: ± 15

rack travel mm	: 0.50
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Tolerance mm : \pm 0.50
Rated speed rpm : 1100

LOW IDLE

control lever
position degree : 72.0
tolerance degree : \pm 4.0

control lever
position degree : 18.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. : $>$ 6.00

Testing:

Rated speed rpm : 250
rack travel mm : 5.80
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 600
rack travel mm : 12.30
Tolerance mm : \pm 0.10

Rated speed rpm : 300
rack travel mm : 11.50
Tolerance mm : \pm 0.20

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1500
rack travel mm : 13.30
Tolerance mm : \pm 0.05

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 8.60

M19

Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900

Pressure hPa : 425
rack travel mm : 9.75
Tolerance mm : \pm 0.15

Pressure hPa : 750
rack travel mm : 12.00
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 170

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 190

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 600
Del. quantity
cm³/1000 strokes : 182.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 5.0

rack travel mm : 11.50
Tolerance mm : \pm 0.20

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 129.0
Tolerance
cm³/1000 strokes : \pm 2.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 20.50

Tolerance mm : \pm 0.50
Del. quantity
cm³/1000 strokes : 255.0
Tolerance
cm³/1000 strokes : \pm 20.0
Check tolerance
cm³/1000s. : \pm 24.0

LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.80
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 28.11.97
Test oil : ISO 4113
Combination No. : 0 402 670 807
Injection pump
Pump designation : PE12P120A320LS7814
: -1
EP type number : 0 412 620 819
Governor
Governor design. : RSV375...1050POA535
: -3
Governor no. : 0 421 833 328
Cust. part No. :

Customer spec. information
Customer : MB-NFZ
Motor : OM 444 LA
Power KW : 588.0

TEST BENCH REQUIREMENTS

Inlet line : 3.1
Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0
Overflow valve : 1 417 413 025
Inlet press. bar : 1.5
Overflow quantity
min. l/h : 160
Tolerance l/h : + 10.0
Test nozzle holder
assembly : 1 688 901 019
Opening pressure
bar : 208.5
Tolerance bar : + 1.5

M21

Test lines : 1 680 750 067
Outside diameter : 6.0
x inside diameter : 1.5
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0
Prestroke mm : 4.85
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10
Rack travel in mm : 20.00
Tolerance mm : + 1.00
Firing order : 12- 1- 5- 9- 8
: - 3- 4- 11- 10
: - 2- 6- 7
Phasing : 0-45-60-105-120
: -165-180-225-240
: -285-300-345
Tolerance : + 0.50
Check
tolerance °NW : + 0.75
Start of delivery mark
Tolerance : + 0.10
Check
tolerance °NW : + 0.75
Barrel no. : 8

BASIC SETTING

Rated speed rpm : 650

Rack travel in mm : 14.00
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 263.5

Tolerance
cm³/1000 strokes : ± 1.5

Check tolerance
cm³/1000S. : ± 4.5

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 375

Rack travel in mm : 5.25
Tolerance mm : ± 0.15

Del. quantity
cm³/1000 strokes : 19.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever
position degree : - 3
Rated speed rpm : 800

Rack travel in mm : 0.50
Tolerance mm : ± 0.20

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 650

Aneroid pressure
hPa : 1100
Del. quantity
cm³/1000 strokes : 263.5
Tolerance
cm³/1000 strokes : ± 1.5
Check tolerance
cm³/1000S. : ± 4.5
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 100.0
tolerance degree : ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070
Tolerance 1/min : ± 1
rack travel mm : 12.80

Rated speed rpm : 1154
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : ± 0.50
Rated speed rpm : 900

Rated speed rpm : 1072
Tolerance 1/min : ± 1
rack travel mm : 12.80

Rated speed rpm : 1156
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 1074
Tolerance 1/min : ± 1
rack travel mm : 12.80

Rated speed rpm : 1158
Tolerance 1/min : ± 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 1076
Tolerance 1/min : + 1
rack travel mm : 12.80

Rated speed rpm : 1160
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1078
Tolerance 1/min : + 1
rack travel mm : 12.80

Rated speed rpm : 1162
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1080
Tolerance 1/min : + 1
rack travel mm : 12.80

Rated speed rpm : 1164
Tolerance 1/min : + 4
rack travel mm : 4.00

rack travel mm : 0.50
Tolerance mm : + 0.50

LOW IDLE

control lever
position degree : 76.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 375
rack travel mm : 5.25
Tolerance mm : + 0.15

SET IDLE AUXILIARY SPRING

Rated speed rpm : 100

M23

TORQUE CONTROL

Rated speed rpm : 650
rack travel mm : 14.00
Tolerance mm : + 0.10

Rated speed rpm : 1030
rack travel mm : 13.80
Tolerance mm : + 0.10

Rated speed rpm : 750
rack travel mm : 14.50
Tolerance mm : + 0.10

Rated speed rpm : 950
rack travel mm : 14.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 600
Pressure hPa : 1050
Tolerance mm : + 0.10

MEASUREMENT

Rated speed rpm : 600
Pressure hPa : 400
rack travel mm : -4.00
Tolerance mm : + 0.10

Pressure hPa : 1370
rack travel mm : 0.30

Pressure hPa : 650
rack travel mm : -1.40
Tolerance mm : + 0.10

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1800
Rated speed rpm : 1030
Del. quantity
cm³/1000 strokes : 262.5
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000s. : + 4.5
Speed

Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : 1800
Rated speed rpm : 750
rack travel mm : 14.50
Tolerance mm : + 0.10
Del. quantity
cm³/1000 strokes : 280.5
Tolerance
cm³/1000 strokes : + 1.5
Check tolerance
cm³/1000S. : + 4.5
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 154.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : + 10.0
Check tolerance
cm³/1000S. : + 14.0

LOW IDLE

Rated speed rpm : 375
Rack travel in mm : 5.25
Tolerance mm : + 0.15

M24

Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 11.12.97
Test oil : ISO 4113

Combination No. : 0 402 678 835

Injection pump
Pump designation : PE8P120A320LS7844
EP type number : 0 412 628 860

Governor
Governor design. : RSV350...1050POA673
Governor no. : 0 421 833 590

Cust. part No. : 0270746802

Customer-spec. information
Customer : MB-NFZ
Motor : OM442LA
Power KW : 370.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet
temp. °C : 40
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : + 0.1

Overflow quantity
min. l/h : 140
Tolerance l/h : + 10.0

Test nozzle holde
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0
x length mm : 1000

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : + 1.0

Prestroke mm : 5.05
Tolerance mm : + 0.05
Check
tolerance mm : + 0.10

Rack travel in mm : 20.50
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3
 : - 5- 4- 1

Phasing : 0-45-90-135-180
 : -225-270-315
Tolerance : + 0.50
Check
tolerance °NW : + 0.75

Start of delivery mark

Tolerance : + 0.10
Check
tolerance °NW : + 0.75

Barrel no. : 8

BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 15.30
Tolerance mm : + 0.05

Del. quantity cm ³ /1000 strokes	: 272.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

Rated speed rpm	: 350
Rack travel in mm	: 5.00
Tolerance mm	: ± 0.10
Del. quantity cm ³ /1000 strokes	: 19.0
Tolerance cm ³ /1000 strokes	: ± 3.0
Check tolerance cm ³ /1000S.	: ± 6.0
Speed	
Tolerance cm ³ /1000 strokes	: 8.0
Check tolerance cm ³ /1000S.	: 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 3.75

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1030
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Aneroid pressure hPa	: 1200
Del. quantity cm ³ /1000 strokes	: 272.0
Tolerance cm ³ /1000 strokes	: ± 1.0
Check tolerance cm ³ /1000S.	: ± 4.0
Speed	
Tolerance cm ³ /1000 strokes	: 5.0
Check tolerance cm ³ /1000S.	: 9.0

CONTROL LEVER

control lever position degree	: 96.0
tolerance degree	: ± 4.0

ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 1070
Tolerance 1/min	: ± 1
rack travel mm	: 14.30

Rated speed rpm	: 1150
Tolerance 1/min	: ± 4
rack travel mm	: 4.00

Rated speed rpm	: 1072
Tolerance 1/min	: ± 1
rack travel mm	: 14.30

Rated speed rpm	: 1152
Tolerance 1/min	: ± 4
rack travel mm	: 4.00

Rated speed rpm	: 1074
Tolerance 1/min	: ± 1
rack travel mm	: 14.30

Rated speed rpm	: 1154
Tolerance 1/min	: ± 4
rack travel mm	: 4.00

Rated speed rpm	: 1076
Tolerance 1/min	: ± 1
rack travel mm	: 14.30

Rated speed rpm	: 1156
Tolerance 1/min	: ± 4
rack travel mm	: 4.00

Rated speed rpm : 1078
Tolerance 1/min : + 1
rack travel mm : 14.30

Rated speed rpm : 1158
Tolerance 1/min : + 4
rack travel mm : 4.00

Rated speed rpm : 1080
Tolerance 1/min : + 1
rack travel mm : 14.30

Rated speed rpm : 1160
Tolerance 1/min : + 4
rack travel mm : 4.00

LOW IDLE

control lever
position degree : 75.0
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100
CRT mm min. : > 19.50

Testing:

Rated speed rpm : 350
rack travel mm : 5.00
Tolerance mm : + 0.10

rack travel mm : 2.00
Rated speed rpm : 395
Tolerance 1/min : + 30

SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

TORQUE CONTROL

Rated speed rpm : 1030
rack travel mm : 15.30
Tolerance mm : + 0.05

Rated speed rpm : 800
rack travel mm : 15.30
Tolerance mm : + 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : -

MEASUREMENT

Pressure hPa : 180
rack travel mm : 0.40
Tolerance mm : + 0.05

Pressure hPa : 670
rack travel mm : 5.00
Tolerance mm : + 0.15

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 800
Del. quantity
cm³/1000 strokes : 274.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 140.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Speed
Tolerance
cm³/1000 strokes : 8.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 270.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.00
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 19.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97

Test oil : ISO 4113

Combination No. : 0 402 716 803

Injection pump

Pump designation : PES6P120A700LS7394

EP type number : 0 412 726 947

Governor

Governer design. :

Governer no. :

Cust. part No. : 51.11103-7413

Customer-spec. information

Customer : MAN

Motor : D2866 LE203

Power kW : 327.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde assembly

: 1 688 901 105

Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

NO1

x inside diameter : 3.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.40

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 13.00

Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-

: 3

Phasing : 0-60-120-180-240

: -300

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.10

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 370.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 370.0
Tolerance
cm³/1000 strokes : + 1.0
Check tolerance
cm³/1000S. : + 4.0
Spread
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 13.10
Tolerance mm : + 0.05

Rated speed rpm : 700
rack travel mm : 13.10
Tolerance mm : + 0.20

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : -
Rated speed rpm : 700

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 13.10
Tolerance mm : + 0.05
Del. quantity
cm³/1000 strokes : 345.0
Tolerance
cm³/1000 strokes : + 20.0
Check tolerance
cm³/1000S. : + 24.0

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 95.0
Tolerance
cm³/1000 strokes : + 3.0
Check tolerance
cm³/1000S. : + 6.0
Spread
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113
Combination No. : 0 402 716 804
Injection pump
Pump designation : PES6P120A720LS7244
: -1
EP type number : 0 412 726 965
Governor
Governor design. :
Governor no. :
Cust. part No. : 51.11103-7513

Customer-spec. information
Customer : MAN
Motor : D 2866 LXE
Power KW : 313.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1
Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0
Overflow valve : 1 417 413 047
Inlet press. bar : 2.0
Tolerance bar : ± 0.1
Test nozzle holder
assembly : 1 688 901 105
Opening pressure
bar : 208.5
Tolerance bar : ± 1.5
Test lines : 1 680 750 089

NO3

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0
Prestroke mm : 4.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10
Rack travel in mm : 19.50
Tolerance mm : ± 1.50
Firing order : 6- 2- 4- 1- 5-
: 3
Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75
Start of delivery mark
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75
Barrel no. : 6

BASIC SETTING

Rated speed rpm : 700
Rack travel in mm : 14.35
Tolerance mm : ± 0.05
Del. quantity
cm³/1000 strokes : 340.0

Tolerance
cm³/1000 strokes : \pm 1.0

Check tolerance
cm³/1000S. : \pm 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700
Aneroid pressure
hPa : -
Del. quantity
cm³/1000 strokes : 340.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0
Speed
Tolerance
cm³/1000 strokes : 5.0
Check tolerance
cm³/1000S. : 9.0

TORQUE CONTROL

Rated speed rpm : 700
rack travel mm : 14.35
Tolerance mm : \pm 0.05

LOW IDLE

Rated speed rpm : 300
Del. quantity
cm³/1000 strokes : 23.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113

Combination No. : 0 402 736 897

Injection pump
Pump designation : PES6P120A720/3LS7251
: -1
EP type number : 0 412 726 926

Governor
Governor design. : RQV300...1000PA962
: -15K
Governor no. : 0 421 815 500

Cust. part No. : 51.11103-7498

Customer spec. information
Customer : MAN
Motor : D2866 LF06
Power KW : 309.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

N05

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.10
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 272.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 300

Rack travel in mm : 5.30
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 32.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1059
guide sleeve

travel mm : 8.73
Tolerance mm : ± 0.15

Rated speed rpm : 300
guide sleeve

travel mm : 1.80
Tolerance mm : ± 0.20

Rated speed rpm : 772
guide sleeve

travel mm : 6.83
Tolerance mm : ± 0.25

Rated speed rpm : 480
guide sleeve

travel mm : 3.79

NO6

Tolerance mm : ± 0.25

Rated speed rpm : 1510

guide sleeve

travel mm : 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1300

Rack travel in mm : 11.70

Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1200

Del. quantity

cm³/1000 strokes : 272.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spread

Tolerance

cm³/1000 strokes : 10.0

Check tolerance

cm³/1000S. : 14.0

CONTROL LEVER

control lever

position degree : 294.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1045

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1210

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 253.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 7.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.30
Tolerance mm : \pm 0.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.10
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 12.70
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 12.40
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 13.10
Tolerance mm : \pm 0.05

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 9.00
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 900
Pressure hPa : 220
rack travel mm : 9.45

N07

Tolerance mm : \pm 0.05

Pressure hPa : 720
rack travel mm : 12.00
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 252.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
rack travel mm : 12.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 262.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 169.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 210.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000s. : ± 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.30
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113

Combination No. : 0 402 736 903

Injection pump
Pump designation : PES6P120A720/3LS7251
: -1
EP type number : 0 412 726 926

Governor
Governor design. : RQV300...1000PA962
: -19K
Governor no. : 0 421 815 511

Cust. part No. : 51.11103-7508

Customer spec. information
Customer : MAN
Motor : D2866 LFD6
Power KW : 309.0

TEST BENCH REQUIREMENTS

Inlet Line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

N09

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking
Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 286.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 300

Rack travel in mm : 5.40

Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 32.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1060

guide sleeve

travel mm : 10.45

Tolerance mm : ± 0.15

Rated speed rpm : 300

guide sleeve

travel mm : 1.80

Tolerance mm : ± 0.20

Rated speed rpm : 764

guide sleeve

travel mm : 6.96

Tolerance mm : ± 0.25

Rated speed rpm : 470

guide sleeve

travel mm : 3.67

N10

Tolerance mm : ± 0.25

Rated speed rpm : 1260

guide sleeve

travel mm : 13.50

Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1110

Rack travel in mm : 12.10

Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure

hPa : 1200

Del. quantity

cm³/1000 strokes : 286.0

Tolerance

cm³/1000 strokes : ± 1.0

Check tolerance

cm³/1000S. : ± 4.0

Spread

Tolerance

cm³/1000 strokes : 10.0

Check tolerance

cm³/1000S. : 14.0

CONTROL LEVER

control lever

position degree : 300.0

tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.10

Rated speed rpm : 1045

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1135

Tolerance 1/min : ± 15

rack travel mm : 0.50

Tolerance mm : ± 0.50

Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 253.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200
CRT mm min. : $>$ 7.00

Testing:

Rated speed rpm : 300
rack travel mm : 5.40
Tolerance mm : \pm 0.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 13.20
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 12.90
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 900
Pressure hPa : 220
rack travel mm : 9.45

N11

Tolerance mm : \pm 0.05

Pressure hPa : 720
rack travel mm : 11.95
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 263.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
rack travel mm : 12.90
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 276.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000S. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : ± 15.0
Check tolerance
cm³/1000S. : ± 19.0

LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 5.40
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000S. : ± 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113

Combination No. : 0 402 736 904

Injection pump
Pump designation : PES6P120A720/3LS7251
: -1
EP type number : 0 412 726 926

Governor
Governor design. : RQV300...1000PA962
: -18K
Governor no. : 0 421 815 512

Cust. part No. : 51.11103-7507

Customer-spec. information
Customer : MAN
Motor : D2866 LFD6
Power kW : 309.0

TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Test nozzle holder
assembly : 1 688 901 105

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

N13

Outside diameter : 8.0
x inside diameter : 3.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 4.85
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 13.00
Tolerance mm : ± 0.50

Firing order : 6- 2- 4- 1- 5-
: 3

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10
Check
tolerance °NW : ± 0.75

Barrel no. : 6

BASIC SETTING

Rated speed rpm : 900

Rack travel in mm : 13.55
Tolerance mm : ± 0.05

Del. quantity
cm³/1000 strokes : 286.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

Rated speed rpm : 300

Rack travel in mm : 5.40
Tolerance mm : ± 0.10

Del. quantity
cm³/1000 strokes : 32.0

Tolerance
cm³/1000 strokes : ± 3.0

Check tolerance
cm³/1000S. : ± 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057
guide sleeve

travel mm : 8.73
Tolerance mm : ± 0.15

Rated speed rpm : 300
guide sleeve

travel mm : 2.65
Tolerance mm : ± 0.20

Rated speed rpm : 810
guide sleeve

travel mm : 6.00
Tolerance mm : ± 0.25

Rated speed rpm : 500
guide sleeve

travel mm : 4.36

Tolerance mm : ± 0.25

Rated speed rpm : 1211
guide sleeve

travel mm : 12.00
Tolerance mm : ± 0.25

Rated speed rpm : 1300
guide sleeve

travel mm : 13.50
Tolerance mm : ± 0.50

GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1165

Rack travel in mm : 12.10
Tolerance mm : ± 2.00

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 900

Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 286.0

Tolerance
cm³/1000 strokes : ± 1.0

Check tolerance
cm³/1000S. : ± 4.0

Spread

Tolerance
cm³/1000 strokes : 10.0

Check tolerance
cm³/1000S. : 14.0

CONTROL LEVER

control lever

position degree : 289.0
tolerance degree : ± 4.0

RATED SPEED

rack travel mm : 12.15
Rated speed rpm : 1045

Tolerance 1/min : ± 5

rack travel mm : 4.00
Rated speed rpm : 1135

Tolerance 1/min : ± 15

rack travel mm : 0.50
Tolerance mm : ± 0.50

Rated speed rpm : 1350

LOW IDLE

control lever
position degree : 245.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : $>$ 7.50

Testing:

Rated speed rpm : 300
rack travel mm : 5.40
Tolerance mm : \pm 0.10

Rated speed rpm : 330

TORQUE CONTROL

Rated speed rpm : 900
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 1000
rack travel mm : 13.15
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 12.85
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 900
Pressure hPa : 1200
rack travel mm : 13.55
Tolerance mm : \pm 0.05

Rated speed rpm : 900
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : \pm 0.10

MEASUREMENT

Rated speed rpm : 900

N15

Pressure hPa : 220
rack travel mm : 9.45
Tolerance mm : \pm 0.05

Pressure hPa : 720
rack travel mm : 11.90
Tolerance mm : \pm 0.20

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 240

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 260

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1000
Del. quantity
cm³/1000 strokes : 263.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 750
rack travel mm : 12.85
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 276.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 167.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 220.0
Tolerance
cm³/1000 strokes : \pm 15.0
Check tolerance
cm³/1000S. : \pm 19.0

LOW IDLE

Rated speed rpm : 300
Rack travel in mm : 5.40
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 32.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000S. : 12.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97
Test oil : ISO 4113
Combination No. : 0 402 736 915
Injection pump
Pump designation : PES6P120A12ORS7413
EP type number : 0 412 726 962
Governor
Governor design. : RQV350...1300PA1364K
Governor no. : 0 421 815 558

Cust. part No. : 3283601

Customer-spec. information
Customer : CUMMINS
Motor : 6BTAA
Power KW : 142.0

TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet
temp. °C : 40
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0
Tolerance bar : ± 0.1

Overflow quantity
min. L/h : 225
Tolerance L/h : ± 20.0

Test nozzle holde
assembly : 1 688 901 101

Opening pressure
bar : 208.5
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0
x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES
Set equal delivery quant.
per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0
Tolerance bar : ± 1.0

Prestroke mm : 3.75
Tolerance mm : ± 0.05
Check
tolerance mm : ± 0.10

Rack travel in mm : 12.50
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-
: 4

Phasing : 0-60-120-180-240
: -300
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Start of delivery blocking

*NW after s.o.d. : 5.00
Tolerance : ± 0.50
Check
tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1300

Rack travel in mm : 11.60
Tolerance mm : + 0.05

Del. quantity
cm³/1000 strokes : 125.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 6.10
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 16.5

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Speed

Tolerance
cm³/1000 strokes : 7.0

Check tolerance
cm³/1000S. : 11.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1398
guide sleeve
travel mm : 10.63
Tolerance mm : + 0.15

Rated speed rpm : 350
guide sleeve
travel mm : 1.83
Tolerance mm : + 0.20

Rated speed rpm : 910
guide sleeve
travel mm : 6.09
Tolerance mm : + 0.25

N18

Rated speed rpm : 1620
guide sleeve
travel mm : 13.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : - 1
Rated speed rpm : 1460

Rack travel in mm : 10.80
Tolerance mm : + 2.70

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1300
Aneroid pressure
hPa : 1500

Del. quantity
cm³/1000 strokes : 125.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Speed

Tolerance
cm³/1000 strokes : 5.0

Check tolerance
cm³/1000S. : 9.0

CONTROL LEVER

control lever
position degree : 66.0
tolerance degree : + 4.0

control lever
position degree : 124.0
tolerance degree : + 4.0

RATED SPEED

rack travel mm : 10.60
Rated speed rpm : 1380
Tolerance 1/min : + 5

rack travel mm : 4.00
Rated speed rpm : 1455
Tolerance 1/min : + 15
Check
speed 1/min : + 20

rack travel mm : 0.50
Tolerance mm : + 0.50

Rated speed rpm : 1550

LOW IDLE

control lever
position degree : 78.0
tolerance degree : \pm 4.0

control lever
position degree : 25.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : $>$ 8.80

Testing:

Rated speed rpm : 350
rack travel mm : 6.10
Tolerance mm : \pm 0.10

Rated speed rpm : 350

TORQUE CONTROL

Rated speed rpm : 1300
rack travel mm : 11.60
Tolerance mm : \pm 0.05

Rated speed rpm : 1100
rack travel mm : 11.00
Tolerance mm : \pm 0.10

Rated speed rpm : 750
rack travel mm : 10.20
Tolerance mm : \pm 0.15

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 1300
Pressure hPa : 1500
rack travel mm : 11.60
Tolerance mm : \pm 0.05

Rated speed rpm : 1300
Pressure hPa : -
rack travel mm : 9.10
Tolerance mm : \pm 0.20

MEASUREMENT

Rated speed rpm : 1300

Pressure hPa : 760
rack travel mm : 11.00
Tolerance mm : \pm 0.20

Pressure hPa : 400
rack travel mm : 9.80
Tolerance mm : \pm 0.05

Start interlock

Rated speed rpm : $>$ 100
Rated speed rpm : $<$ 300

Check
speed 1/min : $>$ 80
Check
speed 1/min : $<$ 320

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1500
Rated speed rpm : 1100
Del. quantity
cm³/1000 strokes : 118.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0
Spreed
Tolerance
cm³/1000 strokes : 12.0
Check tolerance
cm³/1000S. : 16.0

Aneroid pressure
hPa : 1500
Rated speed rpm : 750
rack travel mm : 10.20
Tolerance mm : \pm 0.15
Del. quantity
cm³/1000 strokes : 108.5
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000S. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500

Del. quantity
cm³/1000 strokes : 84.0
Tolerance
cm³/1000 strokes : ± 2.0
Check tolerance
cm³/1000s. : ± 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
Del. quantity
cm³/1000 strokes : 165.0
Tolerance
cm³/1000 strokes : ± 20.0
Check tolerance
cm³/1000s. : ± 24.0

LOW IDLE

Rated speed rpm : 350
Rack travel in mm : 6.10
Tolerance mm : ± 0.10
Del. quantity
cm³/1000 strokes : 16.5
Tolerance
cm³/1000 strokes : ± 3.0
Check tolerance
cm³/1000s. : ± 6.0
Spreed
Tolerance
cm³/1000 strokes : 7.0
Check tolerance
cm³/1000s. : 11.0

End of test specification sheet

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Refer to Service Info for test and
adjustment instructions.
See microcard(s) W400/...

Edition : 16.12.97

Test oil : ISO 4113

Combination No. : 0 402 744 805

Injection pump

Pump designation : PES4P120A320RS7312
: -1

EP type number : 0 412 724 803

Governor

Governor design. : RQ400/1200PA1319

Governor no. : 0 421 801 813

Cust. part No. : 51.11103-7553

Customer-spec. information

Customer : MAN

Motor : D 0824 LOH 05

Power kW : 114.0

TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 120

Tolerance l/h : ± 10.0

Test nozzle holder assembly

: 1 688 901 103

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

N21

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values _____

BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.05

Tolerance mm : ± 0.05

Del. quantity

cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

Rated speed rpm : 400

Rack travel in mm : 4.70
Tolerance mm : + 0.10

Del. quantity
cm³/1000 strokes : 40.0

Tolerance
cm³/1000 strokes : + 3.0

Check tolerance
cm³/1000S. : + 6.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

(B) SETTING OF INJECTION PUMP WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1256
guide sleeve
travel mm : 7.33
Tolerance mm : + 0.15

Rated speed rpm : 400
guide sleeve
travel mm : 2.94
Tolerance mm : + 0.20

Rated speed rpm : 1200
guide sleeve
travel mm : 7.00
Tolerance mm : + 0.10

Rated speed rpm : 443
guide sleeve
travel mm : 4.95
Tolerance mm : + 0.10

Rated speed rpm : 530

guide sleeve
travel mm : 7.00
Tolerance mm : + 0.10

Rated speed rpm : 1390
guide sleeve
travel mm : 11.50
Tolerance mm : + 0.50

GUIDE SLEEVE POSITION

control lever
position degree : 109
Rated speed rpm : 700

Rack travel in mm : 20.00
Tolerance mm : + 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000
Aneroid pressure
hPa : 1200

Del. quantity
cm³/1000 strokes : 206.0

Tolerance
cm³/1000 strokes : + 1.0

Check tolerance
cm³/1000S. : + 4.0

Spread

Tolerance
cm³/1000 strokes : 8.0

Check tolerance
cm³/1000S. : 12.0

CONTROL LEVER

control lever
position degree : 96.0
tolerance degree : + 4.0

RATED SPEED
rack travel mm : 12.05
Rated speed rpm : 1250
Tolerance 1/min : + 8

rack travel mm : 4.00
Rated speed rpm : 1320
Tolerance 1/min : + 15

rack travel mm : 0.50
Tolerance mm : + 0.50
Rated speed rpm : 1400

LOW IDLE

control lever
position degree : 71.0
tolerance degree : \pm 4.0

Setting point w/out bumper spring

Rated speed rpm : 300
CRT mm min. : $>$ 7.00

Testing:

Rated speed rpm : 400
rack travel mm : 4.70
Tolerance mm : \pm 0.10

rack travel mm : 2.00
Rated speed rpm : 433
Tolerance 1/min : \pm 20

TORQUE CONTROL

Rated speed rpm : 1000
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 1200
rack travel mm : 13.05
Tolerance mm : \pm 0.10

Rated speed rpm : 700
rack travel mm : 13.05
Tolerance mm : \pm 0.10

ANEROID/ALTITUDE COMPENSATOR TEST

SETTING

Rated speed rpm : 500
Pressure hPa : 1200
rack travel mm : 13.05
Tolerance mm : \pm 0.05

Rated speed rpm : 500
Pressure hPa : -
rack travel mm : 8.90
Tolerance mm : \pm 0.15

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 200
rack travel mm : 9.20
Tolerance mm : \pm 0.15

Pressure hPa : 500
rack travel mm : 11.85
Tolerance mm : \pm 0.25

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure
hPa : 1200
Rated speed rpm : 1200
Del. quantity
cm³/1000 strokes : 208.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : 1200
Rated speed rpm : 700
rack travel mm : 13.05
Tolerance mm : \pm 0.10
Del. quantity
cm³/1000 strokes : 218.0
Tolerance
cm³/1000 strokes : \pm 3.0
Check tolerance
cm³/1000s. : \pm 6.0

Aneroid pressure
hPa : -
Rated speed rpm : 500
Del. quantity
cm³/1000 strokes : 137.0
Tolerance
cm³/1000 strokes : \pm 1.0
Check tolerance
cm³/1000s. : \pm 4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100
rack travel mm : 8.90
Tolerance mm : \pm 0.30
Del. quantity
cm³/1000 strokes : 50.0
Tolerance
cm³/1000 strokes : \pm 8.0
Check tolerance
cm³/1000s. : \pm 12.0

LOW IDLE

Rated speed rpm : 400

Rack travel in mm : 4.70
Tolerance mm : \pm 0.10

Del. quantity
cm³/1000 strokes : 40.0
Tolerance
cm³/1000 strokes : \pm 3.0

Check tolerance
cm³/1000s. : \pm 6.0

Speed
Tolerance
cm³/1000 strokes : 8.0
Check tolerance
cm³/1000s. : 12.0

End of test specification sheet